STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

JOHN ELIAS BALDACCI
GOVERNOR

DAVID P. LITTELL
COMMISSIONER

August 1, 2006

Mr. Chris Short
MDIFW Phillips State Fish Hatchery
147 Fish Hatchery Road
RR1, Box 910
Phillips, Maine 04966

RE: Maine Pollutant Discharge Elimination System (MEPDES) Permit #ME0001058
Maine Waste Discharge License (WDL) Application # W-002036-5Q-B-R
Final Permit/License

Dear Mr. Short:

Enclosed please find a copy of your **final** MEPDES permit and Maine WDL which was approved by the Department of Environmental Protection. Please read the permit/license and its attached conditions carefully. You must follow the conditions in the order to satisfy the requirements of law. Any discharge not receiving adequate treatment is in violation of State Law and is subject to enforcement action.

Any interested person aggrieved by a Department determination made pursuant to applicable regulations, may appeal the decision following the procedures described in the attached DEP FACT SHEET entitled "*Appealing a Commissioner's Licensing Decision.*"

The Department would like to make you aware that your monthly Discharge Monitoring Report (DMR) forms may not reflect the revisions in this permitting action for several months after permit issuance, however, you are required to report applicable test results for parameters required by this permitting action that do not appear on the DMR. Please see the attached April 2003 O&M Newsletter article regarding this matter.

If you have any questions regarding the matter, please feel free to call me at (207) 287-6114 or contact me via email at Robert.D.Stratton@maine.gov.

Sincerely,

Robert D. Stratton
Division of Water Quality Management
Bureau of Land and Water Quality

Enc./cc: Beth DeHaas (MEDEP); Sandy Lao (USEPA);
Adrienne Rollo, PO Box 123, New Vineyard, Me

AUGUSTA
17 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0017
(207) 287-7688 FAX: (207) 287-7826
RAY BLDG., HOSPITAL ST.

BANGOR
106 HOGAN ROAD
BANGOR, MAINE 04401
(207) 941-4570 FAX: (207) 941-4584

PORTLAND
312 CANCO ROAD
PORTLAND, MAINE 04103
(207) 822-6300 FAX: (207) 822-6303

PRESQUE ISLE
1235 CENTRAL DRIVE, SKYWAY PARK
PRESQUE ISLE, MAINE 04769-2094
(207) 764-0477 FAX: (207) 760-3143

web site: www.maine.gov/dep

DMR Lag

(reprinted from April 2003 O&M Newsletter)

When the Department renews discharge permits, the parameter limits may change or parameters may be added or deleted. In some cases, it is merely the replacement of the federally issued NPDES permit with a state-issued MEPDES permit that results in different limits. When the new permit is finalized, a copy of the permit is passed to our data entry staff for coding into EPA's Permits Compliance System (PCS) database. PCS was developed in the 1970's and is not user-friendly. Entering or changing parameters can take weeks or even months. This can create a lag between the time your new permit becomes effective and the new permit limits appearing on your DMRs. If you are faced with this, it can create three different situations that have to be dealt with in different ways.

1. If the parameter was included on previous DMRs, but only the limit was changed, there will be a space for the data. Please go ahead and enter it. When the changes are made to PCS, the program will have the data and compare it to the new limit.

2. When a parameter is eliminated from monitoring in your new permit, but there is a delay in changing the DMR, you will have a space on the DMR that needs to be filled. For a parameter that has been eliminated, please enter the space on the DMR for that parameter only with "NODI-9" (No Discharge Indicator Code #9). This code means monitoring is conditional or not required this monitoring period.

3. When your new permit includes parameters for which monitoring was not previously required, and coding has not caught up on the DMRs, there will not be any space on the DMR identified for those parameters. In that case, please fill out an extra sheet of paper with the facility name and permit number, along with all of the information normally required for each parameter (parameter code, data, frequency of analysis, sample type, and number of exceedances). Each data point should be identified as monthly average, weekly average, daily max, etc. and the units of measurement such as mg/L or lb/day. Staple the extra sheet to the DMR so that the extra data stays with the DMR form. Our data entry staff cannot enter the data for the new parameters until the PCS coding catches up. When the PCS coding does catch up, our data entry staff will have the data right at hand to do the entry without having to take the extra time to seek it from your inspector or from you.

EPA is planning significant improvements for the PCS system that will be implemented in the next few years. These improvements should allow us to issue modified permits and DMRs concurrently. Until then we appreciate your assistance and patience in this effort.

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
STATE HOUSE STATION 17 AUGUSTA, MAINE 04333

DEPARTMENT ORDER

IN THE MATTER OF

ME. DEPT. INLAND FISHERIES & WILDLIFE	)	MAINE POLLUTANT DISCHARGE
PHILLIPS FISH HATCHERY	)	ELIMINATION SYSTEM PERMIT
PHILLIPS, FRANKLIN COUNTY, MAINE	)	AND
FISH HATCHERY	)	
#ME0001058	)	WASTE DISCHARGE LICENSE
#W-002036-5Q-B-R **APPROVAL**	)	**RENEWAL**

Pursuant to the provisions of the Federal Water Pollution Control Act, Title 33 USC, Section 1251, et. seq and Maine Law 38 M.R.S.A., Section 414-A et seq., and applicable regulations the Department of Environmental Protection (Department) has considered the application of the MAINE DEPARTMENT OF INLAND FISHERIES AND WILDLIFE PHILLIPS FISH HATCHERY (hereinafter MDIFW Phillips), with its supportive data, agency review comments, and other related materials on file and FINDS THE FOLLOWING FACTS:

APPLICATION SUMMARY

The applicant has applied for a renewal of Waste Discharge License (WDL) #W-002036-5Q-A-R, which was issued on July 21, 2000, for a five-year term. The WDL approved the discharge of a maximum of 0.28 million gallons per day (MGD) of fish hatchery wastewater to Meadow Brook, Class A, from a state fish hatchery and rearing facility in Phillips, Maine. The applicant has applied for an increase in the effluent flow limit established in the previous licensing action.

PERMIT SUMMARY

January 12, 2001 – The Department received authorization from the U.S. Environmental Protection Agency (USEPA) to administer the National Pollutant Discharge Elimination System (NPDES) permit program in Maine, excluding areas of special interest to Maine Indian Tribes. On October 30, 2003, after consultation with the U.S. Department of Justice, USEPA extended Maine's NPDES program delegation to all but tribally owned lands. The extent of Maine's delegated authority is under appeal at the time of this permitting action. From this point forward, the program will be referred to as the Maine Pollutant Discharge Elimination System (MEPDES) program and permit #ME0001058 will be utilized as the primary reference number for the Phillips facility.

This permitting action is similar to the July 21, 2000 WDL in that it is carrying forward:

1. the monthly average and daily maximum reporting requirements for mass of fish on hand; and
2. the pH limit range of 6.0-8.5 standard units.

This permitting action is different from the July 21, 2000 WDL in that it is:

1. eliminating the 0.28 MGD daily maximum discharge flow limit and establishing a 0.36 MGD monthly average flow limit;
2. establishing BOD and TSS monthly average and daily maximum concentration limits with a provision for the Department to establish new limits in the future based on technology performance analyses of the industry as a whole;
3. establishing BOD and TSS monthly average mass limits based on previous WDL requirements and daily maximum mass limits based on revised concentration and flow limits;
4. establishing seasonal monthly average total phosphorus mass limits based on previous WDL requirements, revised water quality based concentration limits, and daily maximum monitoring requirements;
5. establishing seasonal monthly average and daily maximum orthophosphate mass and concentration monitoring requirements during 2006 and 2007;
6. converting previous mass limits and reporting requirements from pounds of pollutant per 100 pounds of fish on hand to pounds of pollutant per unit of time;
7. establishing a daily maximum mass limit for formalin based on Department best professional judgement (BPJ) and monthly average mass and concentration reporting requirements;
8. establishing a daily maximum concentration limit for formalin based on the previously established formaldehyde limit for three years followed by a revised concentration limit based on Department BPJ of formalin toxicity, to provide for infrastructure, operation, and maintenance upgrades as appropriate to insure compliance;
9. establishing a daily minimum effluent limit and monthly average and daily maximum monitoring requirements for effluent dissolved oxygen;
10. establishing minimum monitoring frequency and sample type requirements based on BPJ;
11. restricting approved outfalls to #005A for all facility wastewater discharges;
12. eliminating the reporting requirement for monthly hours of raceway cleaning;
13. requiring a current facility Operation and Maintenance Plan;
14. requiring submittal of an Alternative Discharge Study report six months prior to permit expiration
15. establishing requirements for settling basin cleaning;
16. requiring compliance with existing state salmonid fish health rules;
17. establishing requirements related to proper use and record keeping of therapeutic agents;
18. eliminating effluent limits for chlorine and establishing record keeping requirements for disinfecting/sanitizing agents;
19. establishing BPJ derived minimum treatment technology requirements for the Phillips facility;
20. establishing requirements for ambient macroinvertebrate biomonitoring if MEDEP monitoring indicates non-attainment conditions; and
21. replacing previous receiving water study requirements with requirements for ambient dissolved oxygen and temperature monitoring studies.

CONCLUSIONS

BASED on the findings in the attached Fact Sheet dated June 29, 2006 and revised July 31, 2006, and subject to the Conditions listed below, the Department makes the following conclusions:

1. The discharge, either by itself or in combination with other discharges, will not lower the quality of any classified body of water below such classification.

2. The discharge, either by itself or in combination with other discharges, will not lower the quality of any unclassified body of water below the classification which the Department expects to adopt in accordance with state law.

3. The provisions of the State's antidegradation policy, 38 MRSA Section 464(4)(F), will be met, in that:

   (a) Existing in-stream water uses and the level of water quality necessary to protect and maintain those existing uses will be maintained and protected;

   (b) Where high quality waters of the State constitute an outstanding national resource, that water quality will be maintained and protected;

   (c) The standards of classification of the receiving water body are met or, where the standards of classification of the receiving water body are not met, the discharge will not cause or contribute to the failure of the water body to meet the standards of classification;

   (d) Where the actual quality of any classified receiving water body exceeds the minimum standards of the next highest classification, that higher water quality will be maintained and protected; and

   (e) Where a discharge will result in lowering the existing quality of any water body, the Department has made the finding, following opportunity for public participation, that this action is necessary to achieve important economic or social benefits to the State.

4. The discharge will be subject to effluent limitations that require application of best practicable treatment.

5. The discharge is necessary and there are no other practical alternatives available.

ACTION

THEREFORE, the Department APPROVES the above noted application of the MDIFW PHILLIPS FISH HATCHERY to discharge fish hatchery wastewater consisting of a monthly average flow of 0.36 MGD of fish hatchery and rearing facility wastewater to Meadow Brook, Class A, SUBJECT TO THE ATTACHED CONDITIONS, and all applicable standards and regulations including:

1. "Maine Pollutant Discharge Elimination System Permit Standard Conditions Applicable To All Permits," revised July 1, 2002, copy attached.

2. The attached Special Conditions, including any effluent limitations and monitoring requirements.

3. This permit expires five (5) years from the date of signature below.

DONE AND DATED AT AUGUSTA, MAINE, THIS 1ST DAY OF AUGUST, 2006.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: _____ FOR
David P. Littell, Commissioner

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: June 27, 2005
Date of application acceptance: July 7, 2005

Date filed with Board of Environmental Protection

FILED
AUG 3 2006
BOARD OF ENVIRONMENTAL PROT.
STATE OF MAINE

This Order prepared by Robert D. Stratton, BUREAU OF LAND & WATER QUALITY

SPECIAL CONDITIONS

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. The permittee is authorized to discharge **fish hatchery wastewater from Outfall #005A (fish hatchery and rearing station)** to Meadow Brook. Such discharges shall be limited and monitored by the permittee as specified below[1]:

Monitoring Parameter	**Discharge Limitations and Reporting Requirements**				**Minimum Monitoring Requirements**		
	Monthly Average as specified	Daily Maximum as specified	Monthly Average as specified	Daily Maximum as specified	Daily Minimum as specified	Measurement Frequency as specified	Sample Type as specified
Flow *[50050]*	0.36 MGD *[03]*	---	---	---	---	Daily *[01/01]*	Measured *[MS]*
BOD[2] *[00310]*	5 lbs/day *[26]*	30 lbs/day *[26]*	6 mg/L *[19]*	10 mg/L *[19]*	---	Once/2 weeks *[01/14]*	Composite[3] *[CP]*
TSS[2] *[00530]*	5 lbs/day *[26]*	30 lbs/day *[26]*	6 mg/L *[19]*	10 mg/L *[19]*	---	Once/2 weeks *[01/14]*	Composite[3] *[CP]*
Total Phosphorus[4] **From June 1 – Sept 30 yearly** *[00665]*	0.07 lbs/day *[26]*	report lbs/day *[26]*	0.037 mg/L *[19]*	report mg/L *[19]*	---	Once/2 weeks *[01/14]*	Composite[3] *[CP]*
Orthophosphate (as P)[4] **June 1 -Sept 30, 2006 and 2007** *[04175]*	report lbs/day *[26]*	report lbs/day *[26]*	report mg/L *[19]*	report mg/L *[19]*	---	Once/2 weeks *[01/14]*	Composite[3] *[CP]*
Fish on Hand *[45604]*	report lbs/day *[26]*	report lbs/day *[26]*	---	---	---	Once/2 weeks *[01/14]*	Calculated *[CA]*
Formalin[5] **Effective until June 30, 2009** *[51064]*	report lbs/day *[26]*	33 lbs/day *[26]*	report mg/L *[19]*	13.5 mg/L *[19]*	---	Once/2 weeks *[01/14]*	Calculated *[CA]*
Formalin[5] **Beginning July 1, 2009** *[51064]*	report lbs/day *[26]*	33 lbs/day *[26]*	report mg/L *[19]*	1.6 mg/L *[19]*	---	Once/2 weeks *[01/14]*	Calculated *[CA]*
Dissolved Oxygen[6] **From June 1 – Sept 30 yearly** *[00300]*	---	---	report mg/L *[19]*	report mg/L *[19]*	7.5 mg/L *[19]*	1/week *[01/07]*	Measured *[MS]*
pH *[00400]*	---	---	---	6.0-8.5 S.U. *[12]*	---	Once/2 weeks *[01/14]*	Grab *[GR]*

The italicized numeric values bracketed in the table above and in subsequent text are code numbers that Department personnel utilize to code the monthly Discharge Monitoring Reports (DMRs). Footnotes are found on Pages 7 and 8.

SPECIAL CONDITIONS
A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

2. The permittee is required to conduct **Ambient Water Quality Monitoring** in Meadow Brook as specified below **from June 1 through September 30 each year**, designated as **Outfall #005B** for the purpose of Permit Compliance System tracking.

Monitoring Parameter	**Discharge Limitations and Reporting Requirements**					**Minimum Monitoring Requirements**	
	Monthly Average as specified	Daily Maximum as specified	Monthly Average as specified	Daily Maximum as specified	Daily Minimum as specified	Measurement Frequency as specified	Sample Type as specified
Dissolved Oxygen[6] **Ambient Location 1:** In Meadow Brook above MDIFW Phillips outfall. *[00300]*	---	---	Report mg/L *[19]*	Report mg/L *[19]*	Report mg/L *[19]*	1/week *[01/07]*	Measured *[MS]*
Water Temperature[6] Ambient Location 1 *[00010]*	---	---	Report Degrees Celsius *[04]*	Report Degrees Celsius *[04]*	Report Degrees Celsius *[04]*	1/week *[01/07]*	Measured *[MS]*
Time of Day[6,7] Ambient Location 1 *[80273]*	---	---	---	Report 24-hour time *[1Q]*	---	1/week *[01/07]*	Record *[RC]*
Dissolved Oxygen[6] **Ambient Location 2:** In Meadow Brook below MDIFW Phillips outfall. *[00300]*	---	---	Report mg/L *[19]*	Report mg/L *[19]*	Report mg/L *[19]*	1/week *[01/07]*	Measured *[MS]*
Water Temperature[6] Ambient Location 2 *[00010]*	---	---	Report Degrees Celsius *[04]*	Report Degrees Celsius *[04]*	Report Degrees Celsius *[04]*	1/week *[01/07]*	Measured *[MS]*
Time of Day[6,7] Ambient Location 2 *[80273]*	---	---	---	Report 24-hour time *[1Q]*	---	1/week *[01/07]*	Record *[RC]*

The italicized numeric values bracketed in the table above and in subsequent text are code numbers that Department personnel utilize to code the monthly DMRs. Footnotes are found on Pages 7 and 8.

SPECIAL CONDITIONS

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS , FOOTNOTES:

All sampling and analysis must be conducted in accordance with: (a) methods approved by 40 Code of Federal Regulations (CFR) Part 136, (b) alternative methods approved by the Department in accordance with the procedures in 40 CFR Part 136, or (c) as otherwise specified by the Department. Samples that are sent out for analysis shall be analyzed by a laboratory certified by the State of Maine's Department of Health and Human Services unless otherwise approved by the Department. **All effluent limits are gross, end of pipe limits, unless otherwise specified.**

1. Effluent Monitoring: Effluent values shall be determined through sampling at Outfall #005A, the only authorized facility discharge, following all means of wastewater treatment. All monitoring shall be conducted so as to capture conditions representative of wastewater generating processes at the facility, such as flow-through and cleaning discharge flows, use of therapeutic and disinfecting/sanitizing agents, etc. and in consideration of settling pond detention times. Any change in sampling location must be approved by the Department in writing.

2. BOD and TSS: BOD and TSS effluent concentration limits are based on results of secondary level fish hatchery wastewater treatment, developed by EPA. It is the Department's intent to re-evaluate and potentially revise concentration limits in the future based on statistical evaluations of demonstrated performance of consistently and properly utilized treatment technology for the industry.

3. Composite Samples: Samples shall consist of 24-hour composites collected with an automatic composite sampler. Alternatively, when weather conditions and/or equipment prevents automatic compositing and upon Department approval, the permittee may manually composite a minimum of four grab samples collected at two-hour intervals during the working day at the facility.

4. Total Phosphorus and Orthophosphate: The concentration and mass effluent limits and monitoring requirements shall consist of gross, end-of-pipe values. Phosphorus limits and monitoring requirements are seasonal and are only in effect from June 1 through September 30 each year. Orthophosphate monitoring requirements are only in effect from June 1 through September 30, 2006 and 2007. Laboratory analysis shall be conducted on the same sample and shall consist of a low-level phosphorus analysis with a minimum detection limit of 1 part per billion (1 ug/L). See Attachment A of this Permit for sample protocols.

5. Formalin: Formalin monitoring shall be conducted only when in use at the facility and shall consist of a calculated effluent value. The permittee shall calculate the effluent formalin concentration through accurate determinations of the formalin concentration administered in each facility use, the volume of water to which the formalin is added, and dilutions provided from administration to end-of-pipe. The effluent mass shall be calculated by multiplying the gallons of formalin used by a 9.13 lbs / gallon conversion formula based on the specific gravity of formalin. The permittee shall provide this information and calculations to the Department in a document accompanying the monthly DMR. See Fact Sheet Section 6f for sample calculations.

SPECIAL CONDITIONS

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS, FOOTNOTES (cont'd):

6. Supplemental Data Forms: In addition to specified DMR reporting requirements, the permittee shall submit all data from effluent dissolved oxygen, ambient dissolved oxygen, water temperature, and time of day monitoring to the Department in a supplemental report accompanying the appropriate monthly discharge monitoring report pursuant to Permit Special Conditions E and O.

7. Time of Day: Time of day of ambient dissolved oxygen and temperature monitoring shall be reported using 24-hour time as HH hours, MM minutes, such as 05 hours 10 minutes.

B. NARRATIVE EFFLUENT LIMITATIONS:

1. The effluent shall not contain a visible oil sheen, foam or floating solids at any time which would impair the usages designated by the classification of the receiving waters.

2. The effluent shall not contain materials in concentrations or combinations which are hazardous or toxic to aquatic life, or which would impair the usages designated by the classification of the receiving waters.

3. The discharges shall not cause visible discoloration or turbidity in the receiving waters which would impair the usages designated by the classification of the receiving waters.

4. Notwithstanding specific conditions of this permit the effluent must not lower the quality of any classified body of water below such classification, or lower the existing quality of any body of water if the existing quality is higher than the classification.

C. UNAUTHORIZED DISCHARGES:

The permittee is authorized to discharge only in accordance with the terms and conditions of this permit and only from Outfall #005A, the only authorized facility discharge. Discharges of wastewater from any other point source are not authorized under this permit, and shall be reported in accordance with Standard Condition B(5) (*Bypass*) of this permit.

D. NOTIFICATION REQUIREMENT:

In accordance with Standard Condition D, the permittee shall notify the Department of the following:

1. Any substantial change in the volume or character of pollutants being introduced into the wastewater collection and treatment system.

SPECIAL CONDITIONS
D. NOTIFICATION REQUIREMENT (cont'd):

2. For the purposes of this section, adequate notice shall include information on:

   a. The quality or quantity of wastewater introduced to the waste water collection and treatment system; and

   b. Any anticipated impact of the change in the quantity or quality of the wastewater to be discharged from the treatment system.

E. MONITORING AND REPORTING:

Monitoring results obtained during the previous month shall be summarized for each month and reported on separate Discharge Monitoring Report (DMR) forms provided by the Department and postmarked on or before the thirteenth (13^{th}) day of the month or hand-delivered to a Department regional office such that the DMR's are received by the Department on or before the fifteenth (15^{th}) day of the month following the completed reporting period. A signed copy of the DMR and all other reports required herein including reports required pursuant to Permit Special Conditions A (footnote 6), F, G, H, N, and O, shall be submitted to the Department's assigned compliance inspector (unless otherwise specified) at the following address:

Department of Environmental Protection
Bureau of Land and Water Quality
Division of Water Quality Management
17 State House Station
Augusta, Maine 043333-0017

F. OPERATION & MAINTENANCE (O&M) PLAN:

On or before March 1, 2007, the permittee shall submit to the Department a current written comprehensive Operation & Maintenance (O&M) Plan ***[09699]***. The plan shall provide a systematic approach by which the permittee shall at all times, properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit.

The O&M Plan shall establish Best Management Practices (BMP) to be followed in operating the facility, cleaning the raceways/culture tanks, screens, and other equipment and disposing of any solid waste. The purpose of the BMP portion of the plan is to identify and to describe the practices which minimize the amounts of pollutants (biological, chemical, and medicinal) discharged to surface waters. Among other items, the plan shall describe in detail efficient feed management and feeding strategies to minimize discharges of uneaten feed and waste products, how and when the accumulated solids are to be removed, dewatered, and methods of disposal. The plan shall also describe where the removed material is to be placed and the techniques used to prevent it from re-entering the surface waters from any onsite storage. The plan shall document the recipients and methods of any offsite waste disposal.

SPECIAL CONDITIONS

F. OPERATION & MAINTENANCE (O&M) PLAN (cont'd):

By December 31 of each year, or within 90 days of any process changes or minor equipment upgrades, the permittee shall evaluate and modify the O&M Plan including site plan(s) and schematic(s) for the wastewater treatment facility to ensure that it is up-to-date. The O&M Plan shall be kept on-site at all times and made available to Department and EPA personnel upon request.

Within 90 days of completion of new and or substantial upgrades of the wastewater treatment facility, the permittee shall submit the updated O&M Plan to their Department inspector for review and comment.

G. SCHEDULE OF COMPLIANCE

The Department is establishing a Schedule of Compliance for implementation of the following effluent limits and requirements established in this permitting action to provide for infrastructure, operation and maintenance upgrades as appropriate to insure compliance. The permittee has recently completed major renovations to numerous MDIFW facilities designed to improve both fish production and effluent quality and has requested a minimum of three years for implementation of more restrictive toxicity based effluent limits. MDIFW proposes to use this time to conduct a comprehensive evaluation of the structural and operational effectiveness of its wastewater discharge treatment systems and to conduct toxicity testing of formalin and potential alternative therapeutics. The permittee shall adhere to the specific required tasks and deadlines detailed below:

1. **Technology and Water Quality Based Effluent Limitations:** The permittee shall ensure that the facility provides wastewater treatment equal to or better than the minimum treatment technology for all wastewater discharges and complies with all technology based effluent limitations, monitoring requirements, and operational requirements established in this permitting action **upon its effective date** and shall ensure that the facility complies with all new toxicity based limits (formalin) as prescribed below.

2. Formalin:

A. **On or before July 1, 2007**, the permittee shall submit to the Department for review and comment, facility wide plans (reports) to address operational and physical modifications necessary to ensure compliance with the formalin limits established in this permit ***[34099]***. The plans shall encompass methods, technologies, and implementation schedules for attainment of the formalin limits. For any alternatives involving design and construction, see Fact Sheet Attachment C for Department guidance on developing an Engineer's Facilities Planning Report.

B. **On or before February 1, 2008**, the permittee shall provide the Department with results of pilot testing and site investigations for the operational and physical modifications necessary to ensure compliance with the formalin limits established in this permit. ***[63899]***

SPECIAL CONDITIONS
G. SCHEDULE OF COMPLIANCE (cont'd)

C. **On or before July 1, 2008,** the permittee shall complete the design for any physical structure, equipment, and/or operational and physical modifications necessary to ensure compliance with the formalin limits established in this permit, obtain all permits or licenses necessary for construction, and provide the Department with a report of the results ***[54299]***.

D. **On or before May 1, 2009**, the permittee shall complete construction and initiate startup of the operational and physical modifications necessary to ensure compliance with the formalin limits established in this permit ***[91899]***.

E. **On or before July 1, 2009,** the operational and physical modifications necessary to ensure compliance with the formalin limits established in this permit shall be fully operational and the revised formalin limits shall be in effect ***[52599]***.

H. ALTERNATIVE DISCHARGE STUDY:

On or before six-months prior to expiration of this permit, MDIFW Phillips is required to submit to the Department for review, an Alternative Discharge Study (ADS) report for the Phillips facility to determine if practical alternatives to the discharge exist. The ADS report shall evaluate wastewater treatment infrastructure, technologies, practices or other modifications that will result in the elimination of the discharge to the receiving water or improvement in the effluent quality, pursuant to guidance in Fact Sheet Section 9. *[34099]*

I. SETTLING BASIN CLEANING:

All wastewater settling structures shall be cleaned when accumulated materials occupy 20% of a basin's capacity, when material deposition in any area of the basins exceeds 50% of the operational depth, or at any time that said materials in or from the basins are contributing to a violation of permit effluent limits. The permittee is responsible for reporting effluent violations pursuant to Standard Conditions D.1 (f) and (g).

J. DISEASE AND PATHOGEN CONTROL AND REPORTING:

MDIFW Phillips must comply with Maine Department of Inland Fisheries and Wildlife and Maine Department of Marine Resources salmonid fish health rules (12 MRSA, §6071; 12 MRSA, §§7011, 7035, 7201, and 7202, or revised rules). The cited rules include requirements for notification to the appropriate agency within 24-hours of pathogen detection. In the event of a catastrophic pathogen occurrence, the permittee shall submit to the Department for review, information on the proposed treatment including materials/chemicals to be used, material/chemical toxicity to aquatic life, the mass and concentrations of materials/chemicals as administered, and the concentrations to be expected in the effluent. The Department will address such occurrences through administrative modifications of the permit.

SPECIAL CONDITIONS

K. THERAPEUTIC AGENTS:

All medicated fish feeds, drugs, and other fish health therapeutants shall be registered with USEPA as appropriate, approved by the US Food and Drug Administration (USFDA), and applied according to USFDA accepted guidelines and manufacturer's label instructions. Records of all such materials used are to be maintained at the facility for a period of five years. This permitting action does not authorize routine off-label or extra-label drug use. Such uses shall only be permitted in emergency situations when they are the only feasible treatments available and only under the authority of a veterinarian. **The permittee shall notify the Department in writing within 24-hours of such use.** This notification must be provided by the veterinarian involved and must include the agent(s) used, the concentration and mass applied, a description of how the use constitutes off-label or extra-label use, the necessity for the use in terms of the condition to be treated and the inability to utilize accepted drugs or approved methods, the duration of the use, the likely need of repeat treatments, and information on aquatic toxicity. If, upon review of information regarding the use of a drug pursuant to this section, the Department determines that significant adverse effects are likely to occur, it may restrict or limit such use.

L. DISINFECTING/SANITIZING AGENTS:

Records of all disinfectants and/or sanitizing agents used that have the potential to enter the waste stream or receiving water, their volumes and concentrations as used and concentrations at the point of discharge, shall be maintained at the facility for a period of five years. This permitting action only authorizes the discharge of those materials applied for, evaluated by the Department, and either regulated or determined to be deminimus in this permitting action or in subsequent Department actions.

M. MINIMUM TREATMENT TECHNOLOGY REQUIREMENT:

Based on information provided and Department BPJ, the permittee shall provide minimum treatment technology for the Phillips facility that shall consist of treatment equal to or better than 60-micron microscreen filtration of the effluent, wastewater settling/clarification, and removal of solids. MDIFW Phillips shall provide treatment equal to or better than the BPJ minimum treatment technology and shall comply with all effluent limitations, monitoring requirements, and operational requirements established in this permitting action. Additional treatment may be necessary to achieve specific water quality based limitations.

SPECIAL CONDITIONS

N. AMBIENT MACROINVERTEBRATE BIOMONITORING:

Based on available data, the Department is concerned with the effects of fish hatchery effluent discharges on rivers and streams in Maine. As macroinvertebrate communities provide indications of the overall ecological health of a receiving water, the Department has determined that biomonitoring is needed to better evaluate attainment of river and stream water classification standards and designated uses, resource impacts, and corrective measures when necessary. In order to address this need, the Department's Division of Environmental Assessment (MEDEP DEA) will conduct macroinvertebrate biomonitoring in the receiving water once during the term of this permitting action to determine attainment of the aquatic life standards. In the event that MEDEP DEA's biomonitoring indicates non-attainment of aquatic life standards in the receiving water, MDIFW Phillips shall be required to conduct ambient macroinvertebrate biomonitoring annually thereafter. Prior to any such monitoring, MDIFW Phillips shall be required to submit a biomonitoring plan for Meadow Brook to MEDEP DEA for review and approval, pursuant to Permit Special Condition P. The plan shall be consistent with "*Methods for Biological Sampling and Analysis of Maine's Rivers and Streams*" (DEP #LW0387-B2002, August 2002) and shall include a scope of work and schedule, monitoring locations and maps, methods and materials, and reporting procedures for the biomonitoring program. Biomonitoring shall be conducted according to a Department approved monitoring plan. Results shall be reported to the Department in a biomonitoring report by December 15 each year. If the receiving water is subsequently determined by the Department to be meeting criteria, standards, and designated uses for its assigned water quality class, the Department will reopen the permit pursuant to Permit Special Condition P, to modify or discontinue the biomonitoring requirement.

O. AMBIENT DISSOLVED OXYGEN AND TEMPERATURE MONITORING:

Based on the low effluent dilution provided in the receiving water and the need for additional data on the effects of the MDIFW Phillips's effluent on the water quality of its receiving water, this permitting action requires the permittee to seasonally monitor ambient dissolved oxygen and temperature levels in Meadow Brook. The permittee shall monitor ambient dissolved oxygen and temperature (Celsius) from June 1 through September 30 each year beginning the effective date of this permit at a frequency of once per week and shall report the time of day the monitoring is conducted. The permittee shall report all monitoring results to the Department in a supplemental report accompanying the appropriate monthly discharge monitoring report *[21899]*. Monitoring shall be conducted within two hours of sunrise, or as indicated in a Department approved monitoring plan, at two locations: (1) in Meadow Brook above the MDIFW Phillips outfall in an area representing free-flowing conditions and (2) in Meadow Brook below the MDIFW Phillips outfall in an area representing the dissolved oxygen sag point, unless revised by the Department. The permittee shall also report on the composition of stream flow above the facility. The permittee shall specify if stream flow results from flow over the upstream reservoir spillway and provide the estimated depth of those flows, or only leakage through the dam and provide the length of time that condition persists in days. **On or before one month following the effective date of this permit,** MDIFW Phillips shall submit a plan for ambient dissolved oxygen and temperature monitoring and

SPECIAL CONDITIONS

O. AMBIENT DISSOLVED OXYGEN AND TEMPERATURE MONITORING (cont'd):

instrument calibration/data quality control to the Department's Division of Environmental Assessment for review and approval ***[00201]***. The plan shall include a scope of work and schedule, monitoring locations and maps, sampling methods and materials, and reporting procedures for the ambient dissolved oxygen and temperature monitoring program. The plan shall also include procedures for regular instrument calibration to ensure data quality control. Ambient dissolved oxygen and temperature monitoring shall be conducted according to a Department approved monitoring plan.

P. REOPENING OF PERMIT FOR MODIFICATIONS

Upon evaluation of the tests results or monitoring requirements specified in Special Conditions of this permitting action, new site specific information, new water quality monitoring data or modeling information, or any other pertinent test results or information obtained during the term of this permit, the Department may, at anytime and with notice to the permittee, modify this permit to; 1) include effluent limits necessary to control specific pollutants or whole effluent toxicity where there is a reasonable potential that the effluent may cause water quality criteria to be exceeded, (2) require additional monitoring if results on file are inconclusive; or (3) change monitoring requirements or limitations based on new information.

Q. SEVERABILITY

In the event that any provision, or part thereof, of this permit is declared to be unlawful by a reviewing court, the remainder of the permit shall remain in full force and effect, and shall be construed and enforced in all respects as if such unlawful provision, or part thereof, had been omitted, unless otherwise ordered by the court.

Protocol for Total P Sample Collection and Analysis for Waste Water and Receiving Water Monitoring Required by Permits

Approved Analytical Methods: EPA 365.2, SM 4500-P B.5 E

Sample Collection: The Maine DEP is requesting that total phosphorus analysis be conducted on composite effluent samples, unless a facility's Permit specifically designates grab sampling for this parameter. Facilities can use individual collection bottles or a single jug made out of glass or polyethylene. Bottles and/or jugs should be cleaned prior to each use with dilute HCL. This cleaning should be followed by several rinses with distilled water. The sampler hoses should be cleaned, as needed.

Sample Preservation: During compositing the sample must be at 0-4 degrees C. If the sample is being sent to a commercial laboratory or analysis cannot be performed the day of collection then the sample must be preserved by the addition of 2 mls of concentrated H_2SO_4 per liter and refrigerated at 0-4 degrees C. The holding time for a preserved sample is 28 days.

Note: Ideally, Total P samples are preserved as described above. However, if a facility is using a commercial laboratory then that laboratory may choose to add acid to the sample once it arrives at the laboratory. The Maine DEP will accept results that use either of these preservation methods.

QA/QC: Run a distilled water blank and at least 2 standards with each series of samples. If standards do not agree within 2% of the true value then prepare a new calibration curve.

Every month run a blank on the composite jug and sample line. Automatically, draw distilled water into the sample jug using the sample collection line. Let this water set in the jug for 24 hours and then analyze for total phosphorus. Preserve this sample as described above.

Finalized May 2006

Protocol for Orthophosphate Sample Collection and Analysis for Waste Water and Receiving Water Monitoring Required by Permits

Approved Analytical Methods: EPA 365.2, SM 4500-P.E

Sample Collection: The Maine DEP is requesting that orthophosphate analysis be conducted on composite effluent samples unless a facility's Permit specifically indicates grab sampling for this parameter. Facilities can use individual collection bottles or a single jug made out of glass or polyethylene. Bottles and/or jugs should be cleaned prior to each use with dilute HCL. This cleaning should be followed by several rinses with distilled water. The sampler hoses should be cleaned, as needed.

Sample Preservation: During compositing the sample must be at 0-4 degrees C. The sample must be filtered immediately (within 15 minutes) after collection using a pre-washed 0.45-um membrane filter. Be sure to follow one of the pre-washing procedures described in the approved methods. Also, be aware that you will likely want to use a designated suction hose and collection container for the orthophosphate filtering process. If the sample is being sent to a commercial laboratory or analysis cannot be performed within 2 hours after collection then the sample must be kept at 0-4 degrees C. There is a 48-hour holding time for this sample although analysis should be done sooner, if possible.

QA/QC: Run a distilled water blank and at least 2 standards with each series of samples. If standards do not agree within 2% of the true value then prepare a new calibration curve.

Every month run a blank on the composite jug and sample line. Automatically, draw distilled water into the sample jug using the sample collection line. Let this water set in the jug for 24 hours and then analyze for total phosphorus. Preserve this sample as described above.

Finalized May 2006

MAINE POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT
AND
MAINE WASTE DISCHARGE LICENSE

FACT SHEET

Date: June 29, 2006
Revised: July 31, 2006

MEPDES PERMIT NUMBER: # ME0001058
WASTE DISCHARGE LICENSE: # W-002036-5Q-B-R

NAME AND ADDRESS OF APPLICANT:

PHILLIPS FISH HATCHERY
Maine Dept. of Inland Fisheries and Wildlife
284 State Street, 41 State House Station
Augusta, Maine 04333

COUNTY: FRANKLIN

NAME AND ADDRESS WHERE DISCHARGE OCCURS:

PHILLIPS FISH HATCHERY
147 Fish Hatchery Road
RR1, Box 910
Phillips, Maine 04966

RECEIVING WATER / CLASSIFICATION: Meadow Brook, Class A

COGNIZANT OFFICIAL AND TELEPHONE NUMBER:

Mr. Chris Short Facility Manager (207) 639-2081
Mr. Steve Wilson, MDIFW Hatchery Supervisor (207) 287-5262

1. APPLICATION SUMMARY

The applicant has applied for a renewal of Waste Discharge License (WDL) #W-002036-5Q-A-R, which was issued on July 21, 2000, for a five-year term. The WDL approved the discharge of a maximum of 0.28 million gallons per day (MGD) of fish hatchery wastewater to Meadow Brook, Class A, from a state fish hatchery and rearing facility in Phillips, Maine. The applicant has applied for an increase in the effluent flow limit established in the previous licensing action.

2. PERMIT SUMMARY

a. Regulatory - January 12, 2001 – The Department received authorization from the U.S. Environmental Protection Agency (USEPA) to administer the National Pollutant Discharge Elimination System (NPDES) permit program in Maine, excluding areas of special interest to Maine Indian Tribes. On October 30, 2003, after consultation with the U.S. Department of Justice, USEPA extended Maine's NPDES program delegation to all but tribally owned lands. The extent of Maine's delegated authority is under appeal at the time of this permitting action. From this point forward, the program will be referred to as the Maine Pollutant Discharge Elimination System (MEPDES) program and permit #ME0001058 will be utilized as the primary reference number for the Phillips facility. Any previous NPDES permits issued by the EPA will be replaced by the MEPDES permit upon issuance. Once retired, all terms and conditions of any NPDES permits are null and void.

b. Terms and conditions – This permitting action is similar to the July 21, 2000 WDL in that it is carrying forward:

1. the monthly average and daily maximum reporting requirements for mass of fish on hand; and
2. the pH limit range of 6.0-8.5 standard units.

This permitting action is different from the July 21, 2000 WDL in that it is:

1. eliminating the 0.28 MGD daily maximum discharge flow limit and establishing a 0.36 MGD monthly average flow limit;
2. establishing BOD and TSS monthly average and daily maximum concentration limits with a provision for the Department to establish new limits in the future based on technology performance analyses of the industry as a whole;
3. establishing BOD and TSS monthly average mass limits based on previous WDL requirements and daily maximum mass limits based on revised concentration and flow limits;
4. establishing seasonal monthly average total phosphorus mass limits based on previous WDL requirements, revised water quality based concentration limits, and daily maximum monitoring requirements;
5. establishing seasonal monthly average and daily maximum orthophosphate mass and concentration monitoring requirements during 2006 and 2007;
6. converting previous mass limits and reporting requirements from pounds of pollutant per 100 pounds of fish on hand to pounds of pollutant per unit of time;
7. establishing a daily maximum mass limit for formalin based on Department best professional judgement (BPJ) and monthly average mass and concentration reporting requirements;
8. establishing a daily maximum concentration limit for formalin based on the previously established formaldehyde limit for three years followed by a revised concentration limit based on Department BPJ of formalin toxicity, to provide for infrastructure, operation, and maintenance upgrades as appropriate to insure compliance;

9. establishing a daily minimum effluent limit and monthly average and daily maximum monitoring requirements for effluent dissolved oxygen;
10. establishing minimum monitoring frequency and sample type requirements based on BPJ;
11. restricting approved outfalls to #005A for all facility wastewater discharges;
12. eliminating the reporting requirement for monthly hours of raceway cleaning;
13. requiring a current facility Operation and Maintenance Plan;
14. requiring submittal of an Alternative Discharge Study report six months prior to permit expiration
15. establishing requirements for settling basin cleaning;
16. requiring compliance with existing state salmonid fish health rules;
17. establishing requirements related to proper use and record keeping of therapeutic agents;
18. eliminating effluent limits for chlorine and establishing record keeping requirements for disinfecting/sanitizing agents;
19. establishing BPJ derived minimum treatment technology requirements for the Phillips facility;
20. establishing requirements for ambient macroinvertebrate biomonitoring if MEDEP monitoring indicates non-attainment conditions; and
21. replacing previous receiving water study requirements with requirements for ambient dissolved oxygen and temperature monitoring studies.

c. History: The most recent licensing/permitting actions include the following:

February 20, 1975 – The USEPA issued NPDES Permit #ME0001058 to the Maine Department of Inland Fisheries and Game for the discharge of an unspecified volume of wastewater from the Phillips Rearing Station to Unnamed brook tributary to Toothaker Pond. The Permit was valid through February 15, 1980.

March 3, 1975 - The Maine Department of Environmental Protection issued License #658 to the Maine Department of Inland Fisheries and Game for the discharge of a daily average of 0.24 MGD of fish hatchery wastewater from the Phillips Rearing Station to Toothaker Pond via unnamed stream, Class B-1. The license expired on February 12, 1978.

September 28, 1977 – The Maine Board of Environmental Protection ordered WDL #658 amended based on effluent monitoring data conducted since issuance of the WDL. In this Board action, the required minimum monitoring frequency for settleable solids was reduced to once per year, while monitoring for all other parameters was eliminated.

March 8, 1978 – The Maine Board of Environmental Protection issued WDL # 2036 to MDIFW for the discharge of a daily maximum of 0.28 MGD of hatchery wastewater from the MDIFW Phillips Rearing Station to unnamed stream, Class B-1. The WDL was issued for a five-year term.

1979 - With the intention of improving water quality in Toothaker Pond, MDIFW diverted Meadow Brook, the receiving water for the MDIFW Phillips wastewater discharge, to bypass Toothaker Pond (some records indicate this as taking place in 1972). Reportedly, Meadow Brook was diverted into Toothaker Pond from its natural course in 1903-1904.

April 27, 1983 – The Maine Board of Environmental Protection issued WDL #2036 for the discharge of a daily maximum of 0.28 MGD of fish hatchery wastewater from the MDIFW Phillips rearing station to Unnamed Stream, Class B-1. The WDL was a renewal of a previously issued license #2036, but although it contained daily average and maximum effluent limits, contained no required monitoring frequencies or sample types. The WDL was issued for a one-year term, pending receipt of results of phosphorus vulnerability testing to be done by MEDEP's Division of Environmental Evaluation and Lake Studies.

July 21, 2000 – The Department issued # W-002036-5Q-A-R to the MDIFW Phillips fish hatchery for the discharge of a daily maximum of 0.28 MGD of treated fish hatchery wastewater. The WDL was issued for a five-year term.

September 10, 2001 –The Department required monitoring for Outfall #001B, designated for effluent discharges from the facility when cleaning raceways, to be conducted by autocompositer.

February 2002 – On behalf of MDIFW, Fishpro Inc. submitted an Alternative Discharge Study report for all nine MDIFW hatcheries and rearing stations. The study evaluated eliminating effluent discharges through: piping the discharges to larger receiving waters, connecting to municipal wastewater treatment facilities, wastewater storage collection, land application of wastewater, and discharging to existing wetland areas. The study determined that none of the alternatives evaluated were viable options for the MDIFW facilities.

September 12, 2002 – The Department submitted a report entitled *Maine Department of Environmental Protection Water Quality Concerns and Effects from State Fish Hatchery Discharges* to the Maine Legislature's Inland Fisheries and Wildlife Subcommittee's Commission to Study the Needs and Opportunities Associated with the Production of Salmonid Sport Fish in Maine and MDIFW.

November 2002 – FishPro Inc. submitted to MDIFW its *Comprehensive Statewide Fish Hatchery System Engineering Study* addressing recommended upgrades to all MDIFW fish hatcheries and rearing facilities.

July 11, 2003 – The Department administratively modified WDL # W-002036-5Q-A-R to extend the 3-year schedule of compliance for BOD, TSS, and phosphorus effluent limits established in the WDL through the life of the WDL.

June 27, 2005 - The Department received a timely application from MDIFW for renewal of the WDL for the discharge of fish hatchery wastewater from the Phillips facility. The application was assigned WDL # W-002036-5Q-B-R and MEPDES permit #ME0001058.

d. Source Description/ Facility Operation:

The MDIFW Phillips State Fish Hatchery was constructed in 1931 as a state aquaculture facility on a 14.4-acre parcel of state owned land. MDIFW Phillips has recently received a donation of 24-acres of land upstream of the facility. MDIFW Phillips was originally established as a brook trout rearing station and was converted to a broodstock hatchery in 1965. The hatchery building was rebuilt in 1981 after it was destroyed by fire and the raceways were enclosed in 2001. MDIFW Phillips is a brook trout hatchery and broodstock rearing facility that supplies Kennebago strain brook trout eggs to other MDIFW facilities such as MDIFW Embden, Palermo, Governor Hill (Augusta), Dry Mills (Gray), and Enfield, and stocks surplus broodstock brook trout in various waters, as part of MDIFW's responsibilities in managing fisheries in Maine. MDIFW Phillips has also supplied brook trout eggs to other states and countries for establishment of broodstock supplies. MDIFW Phillips obtains eggs from broodstock maintained on site in the fall, incubates them, and supplies "eyed" eggs to facilities as needed each spring. MDIFW Phillips consists of a hatchery building, covered raceways for fish rearing, a concrete effluent settling basin, an earthen effluent settling pond, and associated structures including a residence, barn, generator building, tool shed, and solar warming collector for hatchery well water.

Influent Water:

MDIFW Phillips' influent water is supplied by one well, a spring, and a storage reservoir within Meadow Brook. Water for the hatchery building is supplied by a 430-foot deep well (maximum flow 30 gallons per minute (gpm), average flow 26 gpm) and an upstream spring (maximum flow 20 gpm, average flow 8-20 gpm). The well and spring are connected to a solar warming collector to raise the water temperatures for fry and spring yearling fish in the hatchery building. Influent water to the hatchery facility is injected with oxygen and water sources are blended as necessary to achieve optimal hatching and initial rearing conditions. The hatchery building headbox utilizes a sealed column to supplement aeration/degassing.

Water for the rearing facility raceways is supplied by the Meadow Brook storage reservoir (maximum flow 400 gpm, average flow 243 gpm) and the flow-through water from the hatchery facility. The reservoir intake contains a coarse screen to exclude large debris and wild fish from entering the facility. Water is supplied from the reservoir to the rearing facility via a 10-inch diameter pipe. Influent water is made to "spill over" at the head of the raceway system to provide aeration. Bulk liquid oxygen tanks (LOX) and low head oxygenators (LHO) are used to aerate and provide oxygen at every third raceway pool. Flow-through water from the hatchery facility is piped to the head of the raceways via a 4-inch diameter pipe that passes through two 700-gallon settlement tanks prior to entering the rearing structures. An additional surface water supply pond (capacity 30 gpm) is connected to the third raceway pool via a 3-inch diameter pipe for use to insure adequate rearing flows during cleaning operations. This "ice pond" is also available for supplementing facility flows in the event of extreme drought conditions.

MDIFW Phillips is a flow-through facility with flows through its hatchery and rearing facilities discharged to Meadow Brook (Class A, less than 10 square mile watershed), an in-stream cranberry bog, followed by Orbeton Stream (Class A), the Sandy River (Class AA, B), and the Kennebec River (Class B).

Hatchery Facilities:

MDIFW Phillips' hatchery facility consists of two stacks of eight vertical flow incubators / egg trays (total 16 trays) and four, 5-foot diameter "combi-tanks" for egg hatching and incubation. Each of the egg tray / incubation units is supplied with a water flow of 1-3 gpm with a maximum flow of 10 gpm. The egg trays are used exclusively for those eggs to be supplied to other facilities. Combi-tanks are designed to provide space for egg incubation in the upper, shallow tray and space for fry development (early rearing) in the lower, deeper portion of the tank upon hatching. The top portions of the tanks have a flow through rate of 2 gpm and maintain depths of 8-inches (98-gallons each). The bottom portions of the tanks have a flow through rate of 5 gpm and maintain depths of 36-inches (440-gallons each). The hatchery facility also contains four, 5-foot diameter x 18-inch operational depth (220-gallons, 2-8 gpm flow) and four 8-foot diameter x 18-inch operational depth (564-gallons, 8-10 gpm flow) indoor rearing (growout) tanks for intermittent use. Two portable LOX tanks are used to oxygenate the hatchery house water. Structures within the hatchery facility are cleaned daily and wastewater is discharged as described below. Each tank is equipped with one effluent screen to contain the fry.

Eggs develop on slightly different schedules depending on when they are taken from the broodstock. Generally, eggs "eye-up" in approximately thirty days from the time they are taken, hatch approximately 15-days after eye-up, and begin to feed approximately 15 days after hatching. Eggs are taken from broodstock in the fall (October-November). The fish that hatch within the combi-tanks remain in the lower portions of the tanks until approximately the next August (less than one year old). The fry are then moved to grow-out tanks within the hatchery facility until the next May (1.5 years old), at which time they are moved to the outside rearing structures to make room for the next age class of fish.

Rearing / Broodstock Facilities:

MDIFW Phillips' rearing facilities consist of one line of eight, covered, concrete raceway pools. The raceway pools are 75-feet x 5-feet x 18-inches deep (operational depth) (4,210 gallons). A ninth uncovered raceway pool, 100-feet x 8-feet x 3-feet deep (17,950 gallons) acts as a settling basin for flow-though water. Fish are distributed within the raceways from youngest at the top to oldest at the bottom. Raceways are cleaned and wastewater discharged as indicated below.

MDIFW Phillips is a broodstock facility designed to produce eggs as described above. MDIFW Phillips does not produce fish for a stocking program of its own, but produces enough fish to meet its described purpose. Thus, all fish maintained at MDIFW Phillips are broodstock trout of varying degrees of maturity. All eggs hatched and reared at MDIFW Phillips are obtained from on-site broodstock. Additional supplies are obtained to

supplement MDIFW Phillips stocks when necessary to maintain genetic integrity. MDIFW Phillips maintains age classes from one to four years, breeding four-year old females with three-year old males each year. Each age class is only bred once and is retired and stocked out to various waters following breeding.

MDIFW Phillips maintains an isolation shed that consists of two, four-foot diameter polypropylene tanks for rearing wild egg strains and conducting experiments. This facility is used to isolate any new strains, including supplemental broodstock eggs, until testing is completed. The isolation shed maintains a direct discharge to Meadow Brook, however only eggs are kept in the facility and no feeding or medicating is conducted.

Feed / Fish:

Fish within the hatchery facility are fed by automatic vibrating feeders. Young fish within the raceways are hand fed or with belt feeders, then switched to demand feeders. MDIFW Phillips indicates that it uses approximately 30 pounds of food per day with maximum biomass on site and feeding occurring in September.

In its application, MDIFW Phillips indicated that the maximum quantity of fish kept on station consists of 1,600 first year trout weighing 34 pounds, 1,200 second year trout weighing 314 pounds, and 1,546 brood stock trout weighing 6,000 pounds. In 2006, MDIFW updated these figures to a projected total of 3,254 pounds of fish on station due to biomass reductions on site.

e. Wastewater Treatment:

Hatchery and rearing facility flow-through and cleaning wastewaters are discharged to Meadow Brook. Hatchery flow through-water passes through two 700-gallon settlement tanks prior to reuse in the rearing structures, as described above. Hatchery cleaning water is routed directly to a common wastewater ditch that runs parallel to the raceway line to a 100-foot x 25-foot x 2-foot deep (37,400-gallons) earthen settling pond, that discharges to Meadow Brook. Raceway flow-through water is discharged in series through all of the pools in each line, to the 17,950-gallon in-line concrete settling basin referenced above, then to Meadow Brook. To clean the raceways, MDIFW staff has historically scrubbed the sides and bottoms from the top end of the raceway pool moving down-flow toward the bottom end. At the bottom of all raceway pools is located a screened 1.5-foot long "quiescent zone" with a covered discharge pipe routed to the common wastewater ditch and 37,400-gallon earthen settling pond, that in turn discharges to Meadow Brook. After the raceway pool and quiescent zone screen are cleaned, the quiescent zone plug is replaced and the cleaners move to the next raceway pool. Alternately, instead of discharging raceway cleaning water to the earthen settling pond, during summer months, MDIFW Phillips staff suction accumulated materials in each quiescent zone with a pool vacuum and discharge them to the ground surface on facility property to remove solids from the waste-stream. When this is done, MDIFW Phillips staff ensure that removed materials are not allowed to reenter the waste-stream. MDIFW Phillips indicates that it takes approximately 20 minutes to clean each

raceway pool. Only two raceway pools are cleaned each day to avoid excess stress on the fish. The concrete settling basin and earthen settling pond are cleaned out through suctioning approximately every two years with accumulated materials properly disposed of through land application on facility property. MDIFW is responsible for ensuring their compliance with Nutrient Management Laws administered by the Maine Department of Agriculture.

Use of agents for therapeutic and disinfecting/sanitizing purposes are addressed in subsequent Fact Sheet sections titled accordingly.

3. CONDITIONS OF PERMITS

Maine law, 38 M.R.S.A. Section 414-A, requires that the effluent limitations prescribed for discharges, including, but not limited to, effluent toxicity, require application of best practicable treatment (BPT), be consistent with the U.S. Clean Water Act, and ensure that the receiving waters attain the State water quality standards as described in Maine's Surface Water Classification System. In addition, 38 M.R.S.A., Section 420 and Department rule 06-096 CMR Chapter 530, *Surface Water Toxics Control Program,* require the regulation of toxic substances not to exceed levels set forth in Department rule 06-096 CMR Chapter 584, *Surface Water Quality Criteria for Toxic Pollutants*, and that ensure safe levels for the discharge of toxic pollutants such that existing and designated uses of surface waters are maintained and protected.

4. RECEIVING WATER QUALITY STANDARDS:

Maine law, 38 M.R.S.A., Section 467.4.G(2)(a) classifies Meadow Brook at the point of discharge as a Class A water. Maine law, 38 M.R.S.A., Section 465.2, describes the standards for Class A waters.

Following issuance of the 1983 WDL and prior to the 2000 WDL for MDIFW Phillips, the Maine Legislature amended the water classification statute upgrading Meadow Brook from Class B-1 to Class A. On January 24, 1996 regarding three commercial fish hatcheries / rearing facilities in like situation, the Department interpreted the Legislature's intent to "grandfather" the discharge existing at that time from the Class A requirement that the effluent be of equal or better quality than the receiving water. See Fact Sheet Section 6 for clarification of this grandfathering.

The Department has determined that Meadow Brook, at the point of discharge, has a watershed of approximately 0.32 square miles. Maine law, 38 M.R.S.A., Section 464.4.A(1) states, "*...the department may not issue a water discharge license for...direct discharge of pollutants to waters having a drainage area of less than 10 square miles, except that discharges into these waters that were licensed prior to January 1, 1986, are allowed to continue only until practical alternatives exist*".

5. RECEIVING WATER QUALITY CONDITIONS:

The previous licensing action stated, "(a)*ccording to available information Meadow Brook is attaining the standards of its classification. Meadow Brook discharges to Cranberry Bog"* Department biomonitoring conducted in Meadow Brook in 2000 revealed that the macroinvertebrate communities in the stream below the facility were attaining Class A aquatic life standards. The State of Maine 2004 *Integrated Water Quality Monitoring and Assessment Report* (DEPLW0665), prepared pursuant to Sections 303(d) and 305(b) of the Federal Water Pollution Control Act includes the receiving water in the designation *Sandy R and tributaries above Rt 145 Strong* (Assessment Unit ME0103000305, Segment ID 315R), listed in Category 2, Rivers and Streams Attaining Some Designated Uses – Insufficient Information for Other Uses. The listing identifies a 138.7 mile segment of Class AA, A, and B waters with a monitoring date of 2002. All freshwaters in Maine are listed as only partially attaining the designated use of recreational fishing due to a fish consumption advisory (Category 5-C). The advisory was established in response to elevated levels of mercury in some fish caused by atmospheric deposition. The Department has no information that the Phillips facility causes or adversely contributes to the consumption advisory. However, due to ongoing concerns with the effects of fish hatchery discharges on receiving waters, this permitting action is establishing effluent limitations, monitoring and operational requirements accordingly, including requirements for ambient macroinvertebrate biomonitoring (Permit Special Condition N), and ambient monitoring for dissolved oxygen and temperature (Permit Special Condition O).

If it is determined that non-attainment conditions exist in the receiving water(s) and that MDIFW Phillips causes or contributes to those conditions, this permitting action may be reopened pursuant to Permit Special Condition P and effluent limitations, monitoring and operational requirements, and/or wastewater treatment requirements adjusted accordingly.

6. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS:

On June 30, 2004, USEPA finalized the Effluent Limitations Guidelines and New Source Performance Standards for the Concentrated Aquatic Animal Production Point Source Category (National Effluent Guidelines). The earlier September 12, 2002 proposed National Effluent Guidelines (NEGs) and subsequent working draft NEGs established numerical limitations for the discharge of TSS and requirements for facilities to develop and implement best management practices (BMP) plans for control of other pollutants.

In the final NEGs, EPA expressed effluent limitations in the form of narrative standards, rather than as numerical values. The final NEGs require facilities to develop and implement BMPs regarding operation and maintenance of the facility, as does this permitting action. EPA stated that it determined it more appropriate to promulgate limits "*...that could better respond to regional and site-specific conditions and accommodate existing state programs in cases where these appear to be working well.*" The final NEGs reference a section of the federal Clean Water Act inclusive of 40 CFR, Part 125.31(f), which states, "*Nothing in this section shall be construed to impair the right of any State or locality under section 510 of the*

Act to impose more stringent limitations than those required by Federal law." Section 510 states, *"Except as expressly provided in this Act, nothing in this Act shall (1) preclude or deny the right of any State...to adopt or enforce...any standard* o(r) *limitation respecting discharges of pollutants, or...any requirement respecting control or abatement of pollution; except that if an effluent limitation...or standard of performance is in effect under this Act, such State...may not adopt or enforce any effluent limitation...or standard of performance which is less stringent than the effluent limitation...or standard of performance under this Act; or (2) be construed as impairing or in any manner affecting any right or jurisdiction of the States with respect to the waters...of such States ".*

Pursuant to Maine Law (38 M.R.S.A., §414-A.1), the Department shall only authorize discharges to Maine waters when those discharges, either by themselves or in combination with other discharges, "*will not lower the quality of any classified body of water below such classification". Further, "the discharge will be subject to effluent limitations that require application of the best practicable treatment". "Best practicable treatment* (BPT) *means the methods of reduction, treatment, control and handling of pollutants, including process methods, and the application of best conventional pollutant control technology or best available technology economically available, for a category or class of discharge sources that the department determines are best calculated to protect and improve the quality of the receiving water and that are consistent with the requirements of the Federal Water Pollution Control Act" (40 CFR). "If no applicable standards exist for a specific activity or discharge, the department must establish limits on a case-by-case basis using best professional judgement...*" considering "*...the existing state of technology, the effectiveness of the available alternatives for control of the type of discharge and the economic feasibility of such alternatives...*". Pursuant to 38 M.R.S.A, §414-A.1 and §464.4, the Department regulates wastewater discharges through establishment of effluent limitations and monitoring requirements that are protective of Maine waters.

Between calendar years 2000 and 2002, eleven Maine fish hatcheries were evaluated to identify potential options for facility upgrades. All nine Maine Department of Inland Fisheries and Wildlife hatcheries were evaluated by FishPro Inc., while the two USFWS hatcheries were evaluated by the Freshwater Institute. Recommended wastewater treatment upgrades for each of the facilities included microscreen filtration of the effluent. Based on the information provided and Department best professional judgement (BPJ), the Department is specifying that minimum treatment technology for the MDIFW Phillips facility shall consist of treatment equal to or better than 60-micron microscreen filtration of the effluent, wastewater settling/clarification, and removal of solids (Permit Special Condition M, Fact Sheet Section 14). MDIFW Phillips shall provide treatment equal to or better than the BPJ minimum treatment technology and shall comply with all effluent limitations, monitoring requirements, and operational requirements established in this permitting action. Additional treatment may be necessary to achieve specific water quality based limitations.

In a January 24, 1996 letter, the Department addressed the issue of applicable effluent and water quality standards for those licensed discharges existing when a receiving water classification is upgraded from Class B to Class A, as was the case for the MDIFW Phillips facility. Class A water standards (38 MRSA, Section 465.2(C)) require that the effluent from direct discharges licensed after January 1, 1986, must "be equal to or better than the existing water quality of the receiving waters" and that discharges licensed before January 1, 1986, "are allowed to continue only until practical alternatives exist". Based on the Department's 1996 letter and as clarified in 2004, for those existing licensed discharges the Department will apply the more stringent of the previous discharge license effluent limits or newly calculated BPT or water quality based effluent limits, taking into consideration past demonstrated effluent performance, in lieu of the "equal to or better" standard. The aquatic life, bacteria, and dissolved oxygen standards applicable to the previous discharge license (Class B standards) will be carried forward until the receiving water is able to meet Class A standards. The licensee/permittee must conduct an Alternative Discharge Study at least prior to each relicensing to determine if the discharge can be eliminated or if there is treatment technology and/or practices available that will result in improved effluent and receiving water quality, ultimately resulting in attainment of Class A standards. All new discharges of pollutants or increases in pollutants in a licensed/permitted facility's existing discharge, excluding flow, must meet all Class A standards. Effluent limits and monitoring requirements in this permitting action are being developed accordingly.

The previous licensing action established the following outfall designations and corresponding processes: Outfall #001A for effluent discharges when not cleaning raceways; Outfall #001B for effluent discharges when cleaning raceways; Outfall #002 for a summary of the total phosphorus values from Outfall #001A and Outfall #001B. As part of the previous licensing action, monitoring for Outfall #001A was suspended until notified by MEDEP to resume monitoring. As Outfall #002A is a summary of Outfalls #001A and #001B, this suspension effectively included Outfall #002A. Additional outfalls were established to correspond to locations and timings of in-stream water quality monitoring, and are addressed in the corresponding Fact Sheet section. This permitting action is revising outfall designations to correspond to actual physical discharge points only. The MDIFW Phillips facility outfall shall be designated as Outfall #005A for all effluent discharges from the facility to Meadow Brook.

a. Flow: The previous licensing action established a daily maximum flow discharge limit of 0.28 MGD and a requirement to monitor and report the monthly average discharge flow. Discharge flow was required to be measured at a frequency of once per month. The previous licensing action established effluent limits and monitoring requirements for discharge flow for Outfalls #001A and #001B as described above. As these processes were assumed to be distinctly separate, the 0.28 MGD limit was established for each outfall designation. As part of the previous licensing action, monitoring for Outfall #001A was suspended until notified by MEDEP to resume monitoring. The previous licensing action established an Effluent Limitation Compliance Schedule that required compliance with effluent limits within three years of the effective date of the WDL and delayed imposition of the limits until that time. The WDL compliance schedule was administratively modified also as described in Fact Sheet Section 2c. In this permitting

action, the Department is eliminating the daily maximum flow limit and establishing a monthly average flow limit of 0.36 MGD based on information provided by MDIFW on facility operations and design capacity and to provide the facility with operational flexibility. However, since Meadow Brook is a Class A water, in which any new pollutant discharges must be equal to or better than ambient water quality, and a water with less than a 10 square mile watershed, in which no new direct discharges of pollutants are allowed, mass pollutant limits shall be based on previous license limits, as described below. This permitting action requires daily measurement of discharge flow, consistent with Department guidelines for wastewater treatment facility discharges.

b. Dilution Factors: Dilution factors associated with wastewater discharges are derived in accordance with freshwater protocols established in Department Regulation Chapter 530, Surface Water Toxics Control Program, October 2005 and methods for low flow calculation contained in Estimating Monthly, Annual, and Low 7-day, 10-year Streamflows for Ungaged Rivers in Maine (Scientific Investigations Report 2004-5026, US Department of Interior, US Geological Service). To calculate potential effects from a facility's effluent discharge, the Department utilizes the receiving water's available dilution during low flow conditions. The MDIFW Phillips facility discharges its treated effluent into the side of Meadow Brook, as described above. Typically, these types of discharges do not achieve rapid and complete mixing with the receiving water since initial dilution is based on mixing resulting from the momentum of a discharge as it exits a discharge pipe (jet effect) as well as the dispersion of the effluent plume as it rises to the surface of the receiving water. Chapter 530.4.B(1) states that analyses using numeric acute criteria for aquatic life must be based on ¼ of the 1Q10 stream design flow to prevent substantial acute toxicity within any mixing zone. The regulation goes on to say that where it can be demonstrated that a discharge achieves rapid and complete mixing with the receiving water by way of an efficient diffuser or other effective method, analyses may use a greater proportion of the stream design, up to including all of it. In developing the previous WDL, the Department utilized a chronic dilution of 1.07:1 based on a 7Q10 low flow value of 0.02 MGD (0.031 cubic feet per second) and MDIFW Phillip's daily maximum discharge limit of 0.28 MGD. This approach appears to have been correct, representative of MDIFW Phillip's position in the headwaters of Meadow Brook. Further, it is reported that Meadow Brook above the MDIFW Phillips facility becomes significantly dewatered during low flow conditions.

Based on the methods for deriving dilution factors described above and the monthly average flow limitation of 0.36 MGD, the Department calculates dilution factors for MDIFW Phillips as follows:

Mod. Acute: ¼ 1Q10 = 0.007 cfs $\Rightarrow \frac{(0.007 \text{ cfs})(0.6464) + 0.36 \text{ MGD}}{0.36 \text{ MGD}} = 1.01:1$

Acute: 1Q10 = 0.026 cfs $\Rightarrow \frac{(0.026 \text{ cfs})(0.6464) + 0.36 \text{ MGD}}{0.36 \text{ MGD}} = 1.05:1$

Chronic: 7Q10 = 0.031 cfs $\Rightarrow \frac{(0.031 \text{ cfs})(0.6464) + 0.36 \text{ MGD}}{0.36 \text{ MGD}} = 1.06:1$

Harmonic Mean = 0.093 cfs $\Rightarrow \frac{(0.093 \text{ cfs})(0.6464) + 0.36 \text{ MGD}}{0.36 \text{ MGD}} = 1.17:1$

As described above, MDIFW Phillip's discharge does not achieve rapid and complete mixing. Thus, the Department is utilizing the default stream flows of ¼ of the 1Q10 pursuant to Chapter 530 in acute evaluations. If MDIFW establishes a guaranteed minimum flow from the Meadow Brook reservoir above MDIFW Phillips or can demonstrate rapid and complete mixing in the future, this determination may be revisited.

c. BOD and TSS: The previous licensing action contained monthly average concentration limits of 2 mg/L and monthly average mass reporting requirements in pounds of pollutant per 100 pounds of fish on hand for both biochemical oxygen demand (BOD) and total suspended solids (TSS). Monitoring requirements consisted of a composite of a minimum of four grab samples collected at two hour increments during a facility working day at a frequency of once per month. The previous licensing action established effluent limits and monitoring requirements for BOD and TSS for Outfalls #001A and #001B as described above. As part of the previous licensing action, monitoring for Outfall #001A was suspended until notified by MEDEP to resume monitoring. The previous licensing action established an Effluent Limitation Compliance Schedule that required compliance with effluent limits within three years of the effective date of the WDL and delayed imposition of the limits until that time. The WDL compliance schedule was administratively modified also as described in Fact Sheet Section 2c.

In licensing actions for twelve state and commercially owned fish hatcheries in 1999 and 2000, the Department established monthly average concentration limits for BOD and TSS of 2 mg/L based on the Department's best professional judgement of best practicable treatment (BPJ of BPT) limits. The BPT limits were developed based on the Department's analysis of effluent data from licensed fish hatcheries in Maine supplied through Discharge Monitoring Reports (DMRs). Based on this analysis, the Department determined that the concentration limits of 2 mg/L constituted achievable levels of these pollutants in fish hatchery wastewater. The Department also required that the BOD and TSS effluent mass be monitored and reported in pounds per 100 pounds of fish on hand. Through extensive facility inspections in 2002, the Department discovered significant variability in facility effluent sampling procedures, calling into question the validity of submitted DMR data, the previous data analysis, and the Department's previous assumptions and conclusions.

In the 2002 proposed NEGs, EPA recommended national TSS effluent limitations for re-circulating and flow-through hatcheries of various designs and levels of production. The most restrictive recommended limits were based on a secondary level of fish hatchery wastewater treatment and consisted of a monthly average limit of 6 mg/L and a daily maximum limit of 10 mg/L. The 2002 proposed draft NEGs did not propose to regulate BOD as EPA believed it would be managed through best management practices at the hatcheries and treatment for TSS.

According to EPA's final NEGs, effluent from fish hatcheries and rearing facilities can contain "*...high concentrations of suspended solids and nutrients, high BOD and low dissolved oxygen levels. Organic matter is discharged primarily from feces and uneaten feed*". As stated in the 2002 proposed NEGs, "*elevated levels of organic compounds contribute to eutrophication and oxygen depletion.*" This is expressed as BOD "*...because oxygen is consumed when microorganisms decompose organic matter*". "*The greater the BOD, the greater the degree of pollution and the less oxygen available.*" The discharge of high BOD wastewater to small receiving waters with insufficient dilutions can result in formation of oxygen deficient areas known as sag points. Oxygen sag points represent both localized impacts to habitat and aquatic life as well as barriers to migration throughout the receiving water. Based on this premises and a long standing practice of regulating effluent BOD, the Department considers BOD a significant pollutant and therefore is establishing effluent limitations and monitoring requirements.

In this permitting action the Department is establishing a BPJ of minimum treatment technology for the MDIFW Phillips facility (Permit Special Conditions M, Fact Sheet Section 14). BOD and TSS concentration limits of 6 mg/L for monthly average and 10 mg/L for daily maximum shall be in effect for Outfall #005A. These numbers are based on fish hatchery wastewater secondary treatment projections and the Department's judgement that effluent BOD should also be regulated. The Department has evaluated actual and projected post-facility upgrade effluent quality data for a significant number of fish hatcheries in Maine and determined that facilities incorporating the minimum treatment technology outlined can be expected to consistently meet the BOD and TSS concentration limits established in this permitting action. It is the Department's intent to re-evaluate and potentially revise limits in the future based on statistical evaluations of demonstrated performance of consistently and properly utilized treatment technology for the industry. The Department reserves the right to reopen facility discharge permits to establish these limits pursuant to Special Condition P of this permit.

Pursuant to 38 M.R.S.A., § 465.2(C), discharges into Class A waters "*...licensed after January 1, 1986, are permitted only if...the discharged effluent will be equal to or better than the existing water quality in the receiving water. Discharges ...licensed prior to January 1, 1986, are allowed to continue only until practical alternatives exist*". Additionally, 38 M.R.S.A., Section 464.4.A, states, "*...the department may not issue a water discharge license for...*" (1) a new "*direct discharge of pollutants to waters having a drainage area of less than 10 square miles*". Pursuant to this and the Department's upgrade "grandfathering" determination described in Fact Sheet Section 6, any new or

increased discharges of pollutants beyond those and their levels included in the previous licensing action are considered as new discharges. Thus, effluent mass limits are being held to no more than prior licensed levels. To calculate applicable mass limits for BOD and TSS, the Department is utilizing the previous WDL monthly average concentration limits of 2 mg/L (ppm), the previous maximum flow limit of 0.28 MGD, and a conversion factor of 8.34 lbs/gallon to yield monthly average mass limits of 5 lbs/day. The daily maximum mass limits are based on the newly established daily maximum concentration limits of 10 mg/L, new monthly average flow limit of 0.36 MGD, and a conversion factor of 8.34 lbs/gallon to yield 30 lbs/day. The Department anticipates that the monthly average mass limits will be limiting factors for the MDIFW Phillips discharge, thus meeting the provisions of 38 M.R.S.A., Section 464.4.A(1) noted above. As the number and mass of fish on station increases, MDIFW Phillips may need to provide additional wastewater treatment that will hold effluent quality constant.

In this permitting action, mass is limited in the more conventional unit of pounds per day instead of the previous pounds per hundred pounds of fish on hand. This permitting action establishes once per two week effluent BOD and TSS monitoring on a year round basis based on the Department's BPJ of monitoring frequencies necessary to more accurately characterize facility effluent conditions.

d. Total Phosphorus and Orthophosphate: Phosphorus is a nutrient that encourages the growth of plants such as planktonic algae and macrophytes in northern waters. Oxygen levels in the water are reduced in the early morning hours due to extended nighttime respiration of algae. The decomposition of excess plant material further reduces the amount of available oxygen in the water through biochemical oxygen demand. Lowering oxygen levels in a receiving water impacts the aquatic life in that water, making it unfit for some forms of life. Further, enrichment from excess nutrients, such as phosphorus, can result in reductions in aquatic macro-invertebrate species diversity, an indicator of the overall health of a receiving water. Excess phosphorus can also result in undesirable aesthetic conditions in a receiving water, impacting that water's ability to meet standards for maintaining recreational use, a designated use by law. Therefore, any increase in the phosphorus content in a receiving water has the potential to cause or contribute to non-attainment of classification standards. Orthophosphate is the portion of total phosphorous that is readily available for uptake by aquatic plants. It is important to be able to characterize the facility effluent in terms of the relationship between orthophosphate and total phosphorus in order to better understand the effects on the receiving water. Maine law (38 MRSA § 464.4.A.4) states that *"...the Department may not issue a water discharge license for...the...discharge of pollutants to waters of the State that...cause those waters to be unsuitable for the designated uses and characteristics ascribed to their class". "*. Further, pursuant to 38 M.R.S.A., § 465.2(C), discharges into Class A waters *"...licensed after January 1, 1986, are permitted only if...the discharged effluent will be equal to or better than the existing water quality in the receiving water. Discharges ...licensed prior to January 1, 1986, are allowed to continue only until practical alternatives exist"*. Additionally, 38 M.R.S.A., Section 464.4.A, states, *"...the department may not issue a water discharge license for..."* (1) a new *"direct discharge of pollutants to waters having a drainage area of less than 10 square miles"*. Pursuant to this and the

Department's upgrade "grandfathering" determination described in Fact Sheet Section 6, any new or increased discharges of pollutants beyond those and their levels included in the previous licensing action are considered as new discharges. Thus, effluent mass limits are being held to no more than prior licensed levels.

The previous licensing action contained a monthly average total phosphorus concentration limit of 0.03 mg/L, a monthly average mass limit of 0.03 kg/day (0.07 lbs/day), and a monthly average mass reporting requirement in pounds of phosphorus per 100 pounds of fish on hand for Outfalls #001A and #001B. The monthly average mass limit of 0.03 kg/day (0.07 lbs/day) was also established for Outfall #002A. The required minimum detection level for phosphorus was 0.001 parts per million (ppm). Monitoring requirements consisted of a composite of a minimum of four grab samples collected at two hour increments during a facility working day at a frequency of once per month. As part of the previous licensing action, monitoring for Outfall #001A was suspended until notified by MEDEP to resume monitoring. As Outfall #002A is a summary of Outfalls #001A and #001B, this suspension effectively included Outfall #002A. The previous licensing action established an Effluent Limitation Compliance Schedule that required compliance with effluent limits within three years of the effective date of the WDL and delayed imposition of the limits until that time. The WDL compliance schedule was administratively modified also as described in Fact Sheet Section 2c. The phosphorus limits contained in the previous WDL originated from Department BPJ of water quality based limits necessary to protect the receiving water and its designated uses at the time of issuance.

For river and stream wastewater discharges, the Department typically utilizes a 0.035-mg/L instream phosphorus concentration limit (ambient water quality threshold) and the dilution provided in a receiving water to calculate water quality based effluent limits, a revised method of analysis from that used and available at the time of issuance of the previous WDL. Based on Department research, the AWQC of 0.035 mg/L corresponds to the maximum level at which algae blooms will not typically occur in a receiving river or stream under normal circumstances. As phosphorus is typically of concern under chronic discharge conditions, the 7Q10 dilution of 1.06:1 described in Fact Sheet Section 6b, Dilution Factors, is being utilized in calculation of a water quality based effluent concentration limit of 0.037 mg/L.

This permitting action is also establishing a monthly average mass limit for Outfall #005A. As Meadow Brook is a Class A water and has a watershed of less than 10 square miles, each of which with limitations on effluent discharges as stated above, the Department must apply the more stringent of the previous license mass limit and a new water quality based mass limit. The previous mass limit consisted of 0.07 lbs/day. A new water quality based mass limit for Outfall #005A is calculated based on the revised concentration limit of 0.037 mg/L, the monthly average effluent flow limit of 0.36 MGD, and a conversion factor of 8.34 lbs/gallon, which results in a mass limit of 0.11 lbs/day. Therefore, the more stringent total phosphorus mass limit from the previous licensing action of 0.07 lbs/day is being carried forward in this permitting action.

This permitting action is also establishing monitoring and reporting requirements for the daily maximum phosphorus and monthly average and daily maximum orthophosphate masses and concentrations discharged. In free flowing rivers and streams, phosphorus and orthophosphate are typically summer time concerns for water quality. Therefore, this permitting action revises the previously established year round phosphorus concentration limits and monitoring requirements and establishes phosphorus limits and phosphorous and orthophosphate monitoring requirements that are in effect from June 1 through September 30 each year. Orthophosphate monitoring and reporting requirements are being established seasonally during 2006 and 2007. This permitting action establishes a once per two week monitoring requirement based on the Department's BPJ of monitoring frequencies necessary to more accurately characterize facility effluent conditions. Reported values shall be expressed in gross end-of-pipe values and phosphorous and orthophosphate analysis shall be conducted on the same sample collected. Laboratory analysis shall consist of a low-level phosphorus analysis with a minimum detection limit of 1 part per billion (1 ug/L), equivalent to the previous 0.001 mg/L detection limit. Based on the results of monitoring, the Department may reopen the permit in the future pursuant to Special Condition P to address facility specific effluent limitations, monitoring and operational requirements.

It must be noted that all new proposed discharges of pollutants or increases in pollutants in the existing discharge, excluding flow, are subject to the provisions for discharges to Class A waters and to waters having a drainage area of less than 10 square miles contained in 38 M.R.S.A., § 465.2(C) and § 464.42(A) respectively. Therefore, if MDIFW Phillips wishes to increase the number and mass of fish on station, it may need to provide additional wastewater treatment that will hold effluent quality constant.

e. Fish on Hand: The reporting requirement for monthly average and daily maximum mass of fish on hand is being carried forward from the previous licensing action. This parameter is intended to enable both the Department and the permittee in evaluating management practices at the facility and trends in effluent quality and receiving water impacts. The previous licensing action required measurement of fish on hand in pounds at a frequency of once per month for Outfalls #001A and #001B as described above. As part of the previous licensing action, monitoring for Outfall #001A was suspended until notified by MEDEP to resume monitoring. This permitting action establishes once per two week monitoring on a year-round basis based on the Department's BPJ of monitoring frequencies necessary to more accurately characterize facility effluent conditions.

f. Formalin: Fish hatcheries commonly use formalin based biocides for therapeutic treatment of fungal infections and external parasites of finfish and finfish eggs. Formalin products (Paracide-F, Formalin-F, or Parasite-S) contain approximately 37 percent by weight formaldehyde gas. USEPA Region 1 provided information related to formaldehyde concerns and limitations in hatchery permitting in Massachusetts specifying that formalin use should be consistent with U.S. Food and Drug Administration (FDA) labeling instructions (21CFR 1 § 529.1030).

However, toxicity data indicates that formalin is toxic to aquatic organisms at concentrations below FDA labeling guidelines. There are currently no ambient water quality criteria for formalin or formaldehyde established in Maine's Surface Water Toxics Control Program (Toxics Program, Chapter 584). Therefore, the Department is evaluating potential effects, effluent limitations, and monitoring requirements based on currently available information and best professional judgement.

EPA's hatchery permitting program in Massachusetts (EPA/MA) establishes acute and chronic water quality based effluent limits and requires Whole Effluent Toxicity testing in any calendar quarter in which formalin is used at a hatchery. EPA/MA's limits were developed based on work by Gerald Szal, Aquatic Ecologist, Massachusetts Department of Environmental Protection (October 24, 1990). Szal's methodology is based on review of a U.S. Fish and Wildlife document (Bills et al. 1977) which lists lethal concentrations (LC_{50}s) of formalin for a variety of fingerling fish. Two species of *Ictalurid* common to Massachusetts waters were selected as appropriate indicator species. Black bullhead had a 96-hour LC_{50} of 62.1 ul/l (mg/L) and Channel Catfish had a 96-hour LC_{50} of 65.8 ul/l (mg/L).

In addition to the Szal information, the Department reviewed studies provided by EPA's hatchery permitting program in New Hampshire (EPA/NH): Environmental Impact Assessment for the Use of Formalin in the Control of External Parasites on Fish, January 1995 (Dr. Stanley Katz, Rutgers University), a 1995 amendment for review of its use as a fungicide on eggs (Katz), and a 1981 Environmental Assessment titled Use of Formalin in Fish Culture as a Parasiticide and Fungicide (John Matheson, USDA, Bureau of Veterinary Medicine). The most conservative results indicate an LC50 of 1.15 mg/L of formalin for ostracods from a study by Bells, Marking, and Chandler (1977) included in the 1995 and 1981 studies above.

The Department also reviewed the results of formalin toxicity testing on EPA's ECOTOX database. Published toxicity data contained LC50 values ranging by several orders of magnitude for the same species in the same studies.

Maine's toxics rules (Chapter 530.1.B) state, "*No person may discharge any toxic substance in any amount or concentration...that may cause or contribute to the failure of any classified body of surface water to attain its existing and designated uses or to meet narrative or numeric water quality criteria.*". Further, Chapter 530.3 states, "*the Department shall establish appropriate discharge prohibitions, effluent limits and monitoring requirements in waste discharge licenses...* " as needed to ensure compliance with water quality criteria, existing and designated uses. The Department found a large range of toxicity data for formalin with significant variation between studies. The Department typically uses the most conservative data in order to ensure protection of aquatic life in Maine, however the range of published toxicity data was so extensive and inconclusive that the Department determined that a more focused study specific to Maine waters was warranted. Using methods similar to those specified in Chapter 530 for establishing site specific criteria, the Department contracted with a commercial laboratory (Lotic Inc., Unity, Maine) in October 2003 to provide information on the acute toxicity of

formalin to the water flea (*Ceriodaphnia dubia)*, a species commonly used in freshwater toxicity testing. All testing was performed by a certified laboratory according to standard methods. According to Katz (1995), formalin undergoes oxidation to formic acid followed by metabolic oxidation by microorganisms to form carbon dioxide and water. The half-life of formalin in water is estimated at 36 hours. Considering the nature of formalin and its intermittent use, the Department determined that acute criteria would be most applicable for comparison.

As reported by the testing laboratory, Lotic Inc., dosing rates in the Department's testing "*were initially established for a range-finding evaluation bracketed by* (formalin) *concentrations between 4.05 and 500 mg/L using 5 dilutions (0.3 dilution factor)".* Pursuant to standard practices, the dosing ranges were modified downward "*in subsequent tests to more accurately bracket appropriate endpoint determinations (A-NOEC* (acute no-effect concentration)*, LC50)".* A total of four series of tests were conducted with the final two test series (tests) consisting of duplicate "definitive" tests utilizing a 0.5 dilution factor. Lotic reported that trend analyses revealed clear concentration-response relationships for the final three tests. Based on Lotic's experience, differences in survival for the two definitive tests "*are within the realm of normal variability for the testing of dilute organic pollutants*". "*For the two definitive tests, the A-NOECs (IC10s) ranged between 0.62 and 2.5 mg/L; LC50s ranged between 5.13 and 20 mg/L*". "*The A-NOEC for formalin (Parasite S) for C. dubia could be as low as 0.62 mg/L*". However, based on the limited number of tests performed and "*given the test variability in the data for the two definitive tests*", Lotic recommended that "*it would be prudent to average the A-NOEC values from these two evaluations (1.56 mg/L)*". "*This value will still be well below the most conservative LC50 value reported (5.13 mg/L)*". USEPA'S National Exposure Research Laboratory reviewed the testing results and found the variances observed to be appropriate. Further, USEPA found utilization of the 1.56 mg/L value as the A-NOEC to be a reasonable approach supported by test results in formulating an agency best professional judgement determination. Therefore, based on the Department's best professional judgement, this A-NOEC is being utilized as the acute criteria for establishing a facility effluent limit. The Department notes that a permittee is free to undertake site specific and water specific toxicity analyses to provide additional information on the toxicity of formalin.

Multiplying the acute criteria by the low flow dilution factor of 1.01:1 described in Fact Sheet Section 6b, Dilution Factors, yields the following acute water quality based effluent limit:

1.56 mg/L (acute criteria) x 1.01 (dilution) = 1.6 mg/L acute formalin limit

Comparatively, the previous licensing action established a requirement stating, "*at no time shall the discharge of Formaldehyde exceed 5 milligrams per liter*". This limit was based on the Department's best professional judgement at the time. As formaldehyde constitutes 37% of formalin, the 5 mg/L limit would equate to a 13.5 mg/L formalin limit. Parts per million (ppm) and mg/L are equivalent measurements.

Actual effluent levels of formalin can be calculated based on the use and dilution available at the facility. MDIFW Phillips primarily uses formalin for treatment of fungal infections on eggs, but may also use it on fish kept at the facility.

For treatments on eggs, MDIFW Phillips administers a concentration of 1,667 ppm (1:600) of formalin for 15-minutes in flow-through water every day for approximately 3-4-weeks in the fall until they "eye-up". Formalin is administered in both the two vertical egg trays and the four combi-tanks. Approximately 0.05-gallons (190 ml) of undiluted formalin is administered directly to each structure to achieve the desired dose, resulting in a maximum total of 0.30-gallons (1,140 ml). As described in Fact Sheet Section 2c, the egg trays have a flow-through rate of 1-3 gpm and the upper trays of the combi-tanks have a flow-through rate of 2 gpm, resulting in a total flow-through discharge of 14 gpm. Fourteen gpm times the 15-minute treatment period yields 210-gallons of egg tray and combi-tank wastewater available for dilution of the 0.30-gallons of formalin administered. The flow through water is then blended into the full facility wastewater flow, which includes flows from the hatchery facility grow-out tanks and rearing facility raceways, and is then routed through MDIFW Phillips' 17,950-gallon concrete settling basin, and discharged to the receiving water. The facility's monthly average discharge flow of 0.36 MGD equates to 3,750-gallons in the 15-minute treatment / flow exchange period. The end of pipe concentration from egg treatment can be calculated as follows:

210-gal hatchery wastewater / 0.3-gal formalin = 700:1 1st dilution
3,750-gal facility wastewater – 210-gal / 210-gal = 16.9:1 2nd dilution
17,950-gal settling pond / 3,750-gal facility wastewater = 4.8:1 3rd dilution
1,000,000 ppm (undiluted) formalin / 700 / 16.9 / 4.8 = 17.6 ppm formalin discharged

For treatments on fish, MDIFW Phillips administers formalin as needed to achieve a dose of approximately 250 ppm (1:4,000) in the rearing structures. Approximately 3.6-gallons of undiluted formalin is administered at a time. Formalin is administered at the head of the affected raceway pools by drip and allowed to flow through the entire line over a one hour period. The flow through water is then blended into the full facility wastewater stream, routed through MDIFW Phillips' 17,950-gallon settling basin, and discharged to the receiving water. The facility's monthly average discharge flow of 0.36 MGD equates to 15,000-gallons in the one hour treatment / flow exchange period. The end of pipe concentration from fish treatment can be calculated as follows:

15,000-gal facility wastewater / 3.6 gal formalin = 4,167:1 1st dilution
17,950-gal settling basin / 15,000-gal facility wastewater = 1.2:1 2nd dilution
1,000,000 ppm (undiluted) formalin / 4,167 / 1.2 = 200 ppm formalin discharged

Permits issued by this department impose the more stringent of the calculated water quality based or best practicable treatment (BPT) based limits. Although no formal BPT based limit has been developed for formalin, the Department considers a facility's discharge under best management practices to correspond to a BPJ of BPT. The calculated water quality based effluent limit is more stringent than the potential effluent formalin concentration from both the egg and fish treatments and is therefore being

established in this permitting action. As the calculated acute limit of 1.6 mg/L for Outfall #005A represents a new more stringent water quality based limit, the Department is establishing a schedule of compliance (Permit Special Condition G) pursuant to State Law, 38 M.R.S.A., Section 414-A.2 to address the investigation and implementation of operational and physical modifications necessary to ensure compliance with the formalin limits established in this permit and to accommodate toxicity studies proposed by the permittee. From the effective date of the permit until June 30, 2009, formalin effluent limits of 13.5 mg/L, based on the formaldehyde limit contained in the previous licensing action, shall be in effect for Outfall #005A. Beginning July 1, 2009, the 1.6 mg/L formalin limit shall be in effect. The Department has not determined an appropriate chronic limit for formalin use at this time.

This permitting action also establishes effluent mass limits pursuant to Department Rules, Chapter 523.6(f). The daily maximum mass limit is calculated based on the permittee's projected maximum amount of formalin used per day (3.6-gallons) times the weight of formalin (9.13 lbs/gal), resulting in a value of 33 lbs/day. This method was used to provide for flexibility in management of necessary treatments and to ensure that formalin is not discharged in toxic amounts. Throughout the term of the permit, the permittee shall report the monthly average effluent formalin mass and concentration. Effluent values shall be determined through calculations, as described in Special Condition A, Footnote 5 and Fact Sheet Section 18.

This permitting action is establishing effluent limitations and monitoring requirements for formalin, as this is the commonly used form, and not for formaldehyde. The Department is requiring MDIFW Phillips to report therapeutic agents used at the facility that have the potential to be discharged to the receiving water.

g. Dissolved Oxygen (effluent): Because of the low dilution of facility effluent provided in the receiving water and to determine effluent effects on the receiving water, this permitting action establishes seasonal monthly average and daily maximum concentration monitoring requirements for effluent dissolved oxygen (D.O.). Further, based on Department modeling and to ensure compliance with Class B D.O. standards, this permitting action establishes a seasonal daily minimum effluent D.O. limit of 7.5 mg/L and once per week monitoring requirements from June 1 through September 30 each year. In addition to requirements established in Permit Special Condition A to report daily minimum, daily maximum, and monthly average concentration results, the permittee shall submit all data from effluent dissolved oxygen monitoring to the Department in a supplemental report accompanying the appropriate monthly discharge monitoring report pursuant to Permit Special Conditions A (footnote 6) and E.

h. pH: The previous licensing action contained the requirement, "*the pH shall not be less than 6.0 or greater than 8.5 at any time unless as naturally occurs in the receiving water*" for Outfalls #001A and #001B, but contained no monitoring requirements. This permitting action is carrying forward the pH range limitation of 6.0-8.5 standard units consistent with the pH limit established in discharge licenses for other fish hatcheries, which is considered by the Department as a best practicable treatment standard. This

permitting action establishes once per two week effluent pH monitoring on a year-round basis based on the Department's BPJ of monitoring frequencies necessary to more accurately characterize facility effluent conditions.

i. Duration of Discharge: The previous licensing action required the licensee to report the numbers of hours per month that raceways were cleaned. This permitting action eliminates this requirement, establishing instead a requirement to provide minimum treatment technology, development of operation and maintenance plans, and revised technology based and water quality based effluent limits and monitoring requirements.

j. Receiving Water Study: The previous licensing action required the licensee to monitor dissolved oxygen, BOD, TSS, and total phosphorus in Meadow Brook at locations upstream and downstream of the outfall. Monitoring was required to be conducted in the mornings and afternoons between July 1 and September 30, 2000, and was designated as Outfalls #011A, #012A, #011P, and #012P. The intent of this requirement was to "*better quantify the characteristics of the hatchery effluent, the effectiveness of the various stages of treatment, and to determine effects on water quality...*". In this permitting action, the Department is utilizing other methods of assessing effluent effects on the receiving water and attainment of water classification standards through ambient macroinvertebrate biomonitoring, ambient dissolved oxygen and temperature monitoring, and effluent monitoring, and is therefore not carrying forward this requirement.

7. ANTI-BACKSLIDING

Federal regulation 40 CFR, §122(l) and Department rules Chapter 523.5(1) contain the criteria for what is often referred to as the anti-backsliding provisions of the Federal Water Pollution Control Act (Clean Water Act). In general, the regulation states that except for provisions specified therein, effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards or conditions in the previous permit. Allowable exceptions to the anti-backsliding provisions include when:

(1) material and substantial alterations or additions to the permitted facility occurred after permit issuance which justify the application of a less stringent effluent limitation and

(2) information is available which was not available at the time of the permit issuance (other than revised regulations, guidance or test methods) and which would justify the application of less stringent effluent limitations at the time of permit issuance.

This permitting action revises previously established effluent limitations and monitoring requirements for several pollutants including BOD, TSS, and total phosphorus and changes the discharge flow limit, which may appear less stringent. The rationale for these actions is contained in Fact Sheet Section 6, *Effluent Limitations & Monitoring Requirements*. The Department believes that these actions are consistent with the anti-backsliding provisions.

8. ANTI-DEGRADATION

Maine's anti-degradation policy is included in 38 M.R.S.A., Section 464(4)(F) and addressed in the *Conclusions* section of this permit. Pursuant to the policy, where a new or increased discharge is proposed, the Department shall determine whether the discharge will result in a significant lowering of existing water quality. Increased discharge means a discharge that would add one or more new pollutants to an existing effluent, increase existing levels of pollutants in an effluent, or cause an effluent to exceed one or more of its current licensed discharge flow or effluent limits, after the application of applicable best practicable treatment technology. As revisions to previous effluent limitations for some pollutants may appear less stringent, the Department is addressing the implications under the anti-degradation policy.

This permitting action revises previously established effluent limitations and monitoring requirements for several pollutants including BOD, TSS, and total phosphorus and changes the discharge flow limit. The rationale for these actions is contained in Fact Sheet Section 6, *Effluent Limitations & Monitoring Requirements*. Based on the information provided in the referenced section, the Department does not consider these actions to result in increased discharges of pollutants and therefore does not consider the anti-degradation policy to be of issue.

9. ALTERNATIVE DISCHARGE STUDY

Maine Law, 38 M.R.S.A., § 465.2(C), states that discharges into Class A waters *"...licensed prior to January 1, 1986, are allowed to continue only until practical alternatives exist"*. Further, *"...the department shall require the applicant to objectively demonstrate to the department's satisfaction that the discharge is necessary and that there are no other reasonable alternatives available."* Maine law, 38 M.R.S.A., Section 464.4.A(1) states, "...the department may not issue a water discharge license for...direct discharge of pollutants to waters having a drainage area of less than 10 square miles, except that discharges into these waters that were licensed prior to January 1, 1986, are allowed to continue only until practical alternatives exist". Meadow Brook is both a Class A water and a water with a drainage area of less than 10 square miles in the vicinity of the MDIFW Phillips discharge. The MDIFW Phillips facility's wastewater discharge is subject to "grandfathering" to the extent outlined in Fact Sheet Section 6, however it is still subject to the above cited requirements. The previous licensing action required the licensee to submit a study of alternatives to the discharge of hatchery wastewater to Meadow Brook (Practical Alternatives Study) within six months following the effective date of the WDL. As indicated in Fact Sheet Section 2c, in February 2002 on behalf of MDIFW, Fishpro Inc. submitted an Alternative Discharge Study report for all nine MDIFW hatcheries and rearing stations. The study determined that none of the alternatives evaluated were viable options for the MDIFW facilities.

Alternative Discharge Studies (ADS) typically evaluate the technical feasibility, estimated costs, and potential environmental impact from alternatives that will result in elimination of a discharge to a receiving water. Such alternatives include, but are not limited to, piping the

discharge to a less restrictive receiving water, connecting the discharge to a municipal wastewater treatment facility, and constructing storage capacity and land applying effluent. The study shall include a material and cost breakdown of each identified option, additional equipment necessary, any needed real estate purchases or easements, and other issues and expenses. If no practical alternative for elimination of the discharge exists, then the ADS shall also evaluate modifications to existing wastewater treatment infrastructure and practices that will result in improvement of the effluent quality, such as additional or alternative treatment technology or methods, operational changes, seasonal modifications, discharge reduction, etc.

As described in Permit Special Condition H, on or before six months prior to expiration of this permit, MDIFW Phillips is required to submit to the Department an ADS report for the Phillips facility to determine if practical alternatives to the discharge exist. The ADS report shall evaluate wastewater treatment infrastructure, technologies, practices or other modifications that will result in the elimination of the discharge to the receiving water or improvement in the effluent quality.

10. SETTLING BASIN CLEANING:

Discharge of inadequately treated fish hatchery wastewater (excess feed and fish waste) contributes solids, BOD, and nutrients to receiving waters, which can contribute to eutrophication and oxygen depletion. This, in combination with other pollutant specific toxic effects, impacts the aquatic life and habitat value in the receiving water. Typical hatchery wastewater treatment practices include effluent filtration and settling with solids removal.

The previous licensing action required the licensee to clean its settling basins when accumulated materials occupy 20% of the basin capacity, or prior to this point if the facility is violating its TSS limits. In this permitting action, the Department is requiring that any settling structures be cleaned when accumulated materials occupy 20% of a basin's capacity, when material deposition in any area of the basins exceeds 50% of the operational depth, or at any time that said materials in or from the basins are contributing to a violation of permit effluent limits. The previous action also required the licensee to measure sludge deposits a minimum of once per year during October at four representative locations in each settling structure. In this permitting action, this requirement is being eliminated and measurement of waste deposition left to the discretion and responsibility of MDIFW Phillips.

11. DISEASE AND PATHOGEN CONTROL AND REPORTING:

Maine Department of Inland Fisheries and Wildlife (MDIFW) Rules (Chapter 2.03-A) and Maine Department of Marine Resources (MeDMR) Rules (Chapter 24.21) state that *"the transfer and/or introduction of organisms fall within the jurisdiction of the Department of Marine Resources (12 MRSA, §6071) into coastal waters within the State of Maine and the Department of Inland Fisheries and Wildlife (12 MRSA, §§7011, 7035 and 7201, 7202) into public and/or private waters within the State of Maine. These rules are intended to protect*

wild and farmed salmonid fish populations and shall be applicable to all individuals involved in the culture and movement of live salmonids and gametes." Further, both agencies' rules define Diseases of Regulatory Concern as *"...infectious agents that have been demonstrated to cause a significant increase in the risk of mortality among salmonid populations in the State of Maine. Diseases of Regulatory Concern are classified by the Commissioner into three (3) disease categories: exotic, endemic (limited distribution) and endemic based on an annual review and analysis of epidemiological data."* The previous licensing action required the licensee to notify the MEDEP the next business day of any diseases in the fish of regulatory concern. . In this permitting action, as a salmonid aquaculture facility, MDIFW Phillips must comply with MDIFW and MeDMR salmonid fish health rules (12 MRSA, §6071; 12 MRSA, §§7011, 7035, 7201, and 7202, or revised rules). The cited rules include requirements for notification to the appropriate agency within 24-hours of pathogen detection. In the event of a catastrophic pathogen occurrence, the permittee shall submit to the Department for review, information on the proposed treatment including materials/chemicals to be used, material/chemical toxicity to aquatic life, the mass and concentrations of materials/chemicals as administered, and the concentrations to be expected in the effluent. The Department will address such occurrences through administrative modifications of the permit.

12. THERAPEUTIC AGENTS:

In the June 30, 2004 final NEGs, EPA requires proper storage of drugs, pesticides and feed and requires facilities to report use of any investigational new animal drug (INAD), extra-label drug use, and spills of drugs, pesticides or feed that results in a discharge to waters of the U.S.

The previous licensing action required that all medicated fish feeds, drugs, and other fish health therapeutants shall be approved by the US Food and Drug Administration (USFDA) and applied according to USFDA acceptable guidelines. Further, records of all such materials used were to be maintained at the facility for five years. The Department is carrying forward these requirements in this permitting action with modifications that therapeutants be applied according to USFDA accepted guidelines and manufacturer's label instructions and that therapeutic agents must also be registered with USEPA, as appropriate.

This permitting action does not authorize routine off-label or extra-label drug use. Such uses shall only be permitted in emergency situations when they are the only feasible treatments available and only under the authority of a veterinarian. The permittee shall notify the Department in writing within 24-hours of such use. This notification must be provided by the veterinarian involved and must include the agent(s) used, the concentration and mass applied, a description of how the use constitutes off-label or extra-label use, the necessity for the use in terms of the condition to be treated and the inability to utilize accepted drugs or approved methods, the duration of the use, the likely need of repeat treatments, and information on aquatic toxicity. If, upon review of information regarding the use of a drug pursuant to this section, the Department determines that significant adverse effects are likely to occur, it may restrict or limit such use.

This permitting action does not authorize the discharge of drugs authorized by the USFDA pursuant to the Investigational New Animal Drug (INAD) program. As the INAD program typically involves the long-term study of drugs, their benefits and effects, the permittee is anticipated to be able to notify the Department of its intent to conduct, and provide information related to, such study. The permittee is required to provide notification to the Department for review and approval prior to the use and discharge of any drug pursuant to the INAD program. This notification must include information to demonstrate that the minimum amount of drug necessary to evaluate its safety, efficacy, and possible environmental impacts will be used. Notifications must also include an environmental monitoring and evaluation program that at a minimum describes sampling strategies, analytical procedures, evaluation techniques and a timetable for completion of the program. The program must consider the possible effects on the water column, benthic conditions and organisms in or uses of the surrounding waters. Review and approval of INAD related uses and discharges will be addressed through administrative modifications of the permit.

Formaldehyde: The previous licensing action established a requirement stating, "*at no time shall the discharge of Formaldehyde exceed 5 milligrams per liter*". The discharge of formaldehyde is addressed in Fact Sheet Section 6f, EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS, Formalin, above. The Department is requiring MDIFW Phillips to continue to report therapeutic agents used at the facility that have the potential to be discharged to the receiving water.

Sodium Chloride: MDIFW Phillips may use sodium chloride (NaCl, salt) for treatment of fungal infections or external parasites on fish as needed. If necessary, MDIFW Phillips anticipates using a maximum of 200 pounds of salt per day on an intermittent basis between June 1 and September 30 for this purpose. The salt would be diluted in the full facility waste-stream (0.36 MGD) prior to discharge to the receiving water. The concentration in the effluent can be calculated as follows:

200-lbs NaCl divided by 0.36 million gals divided by 8.34 lbs/gal = 67 ppm salt.

The average concentration of NaCl in seawater is estimated at 35 parts per thousand (ppt) or 35,000 ppm. The Department's Division of Environmental Assessment (MEDEP DEA) reports that sampling results in Maine marine waters indicate salinity levels of approximately 30 ppt or 30,000 ppm. The MEDEP DEA further reports that instream NaCl levels of between 1 and 5 ppt (1,000 and 5,000 ppm) can potentially result in harm to freshwater aquatic life. The effluent concentration calculated above would be subject to further dilution upon entering MDIFW Phillips' concrete settling basin or earthen settling pond. In that the effluent NaCl concentrations are anticipated to fall significantly below the 1,000 ppm level of concern, the Department is not establishing specific limitations or monitoring requirements for NaCl in this permitting action. Instead, use of NaCl shall be consistent with the use and record keeping requirements for therapeutic agents specified above.

Calcium Chloride: MDIFW has indicated that it uses small amounts of calcium chloride in solution through its broodstock / rearing facility flow-through water to provide for proper fish development by ensuring that calcium levels within the rearing structures approximate those normally found in Maine waters. MDIFW reports that approximately 50 pounds of calcium chloride per day is added to a mix tank and the resulting solution allowed to drip in at the head of the raceways. Residual calcium levels in the flow-through water are diluted in the full facility wastewater stream and the 17,950-gallon settling basin prior to entering the receiving water. Levels are not permitted to exceed the natural range of calcium currently found in Maine waters. Chloride levels are anticipated at a fraction of those calculated for sodium chloride treatments above, based on the lower amount of material added. The Department anticipates deminimus levels of calcium chloride discharged and thus is not establishing limitations or monitoring requirements in this permitting action. Instead, use of calcium chloride shall be consistent with the use and record keeping requirements for therapeutic agents specified above.

Other Materials: MDIFW Phillips reports that it uses a total of approximately 1,000 grams per year of MS 222 for anesthesia and tranquilization of fish during sampling and spawning. MDIFW mixes approximately 8-grams of MS 222 in 12-gallons of water to achieve the desired concentration. The MS 222 does not enter the facility waste-stream or receiving water and is therefore not addressed in this permitting action.

MDIFW Phillips reports using no other therapeutic or medicinal agents.

13. DISINFECTING/SANITIZING AGENTS:

The previous licensing action required the licensee to submit a list of all sanitizing agents and/or disinfectants used on rearing equipment, their concentrations as used and concentrations and masses at the point of discharge. Further, the previous licensing action required that at no time shall the concentration of chlorine in the receiving water exceed 11 parts per billion (ppb) for chronic and/or 19 ppb for acute toxicity concerns. Also, all footbath wastes were required to be disposed of by approved methods and not into the hatchery waste stream or receiving waters.

MDIFW Phillips reports that no chlorine based products are used at the facility in such a way that they will enter the waste-stream or receiving water. Therefore, this permitting action eliminates previously established effluent limitations for chlorine. MDIFW Phillips reports that it uses a hard surface disinfectant, iodine, and Cascade as disinfectants at the facility, but that no disinfectants enter the waste-stream or receiving water. MDIFW Phillips further reports that all footbath wastes will be properly disposed of and will not enter the waste-stream or receiving water.

This permitting action requires MDIFW Phillips to maintain records of all sanitizing agents and/or disinfectants used that have the potential to enter the waste-stream or receiving water, their volumes and concentrations as used and concentrations at the point of discharge, at the facility for a period of five years. This permitting action only authorizes the discharge of

those materials applied for, evaluated by the Department, and either regulated or determined to be deminimus in this permitting action or in subsequent Department actions. The discharges of any other agents or waste products not specifically included in this permitting action are considered unauthorized discharges pursuant to Permit Special Condition C.

14. MINIMUM TREATMENT TECHNOLOGY REQUIREMENT:

Between 2000 and 2002, eleven Maine fish hatcheries were evaluated to identify potential options for facility upgrades. All nine Maine Department of Inland Fisheries and Wildlife hatcheries were evaluated by FishPro Inc., while the two USFWS hatcheries were evaluated by the Freshwater Institute. Recommended wastewater treatment upgrades for each of the facilities included microscreen filtration of the effluent. Based on the information provided and Department BPJ, the Department is specifying that minimum treatment technology for the Phillips facility shall consist of treatment equal to or better than 60-micron microscreen filtration of the effluent, wastewater settling/clarification, removal of solids. MDIFW Phillips shall provide treatment equal to or better than the BPJ minimum treatment technology and shall comply with all effluent limitations, monitoring requirements, and operational requirements established in this permitting action. Additional treatment may be necessary to achieve specific water quality based limitations.

It is the Department's intent to evaluate effluent data and potentially revise technology based effluent limits in the future based on statistical evaluations of demonstrated performance of consistently and properly utilized treatment technology. The Department reserves the right to reopen facility discharge permits to establish these limits.

15. AMBIENT MACROINVERTEBRATE BIOMONITORING:

The previous licensing action required the licensee to conduct macroinvertebrate biomonitoring in the receiving water at a point downstream of the facility discharge after complete mixing during the summer of either 2000 or 2001. Biomonitoring was conducted by MEDEP DEA in 2000 and revealed, as outlined in Fact Sheet Section 5, that the macroinvertebrate communities in the stream below the facility were attaining Class A aquatic life standards.

Based on available data, the Department is concerned with the effects of fish hatchery effluent discharges on rivers and streams in Maine. As macroinvertebrate communities provide indications of the overall ecological health of a receiving water, the Department has determined that biomonitoring is needed to better evaluate attainment of river and stream water classification standards and designated uses, resource impacts, and corrective measures when necessary. In order to address this need, the Department's Division of Environmental Assessment (MEDEP DEA) will conduct macroinvertebrate biomonitoring in the receiving water once during the term of this permitting action to determine attainment of the aquatic life standards. In the event that MEDEP DEA's biomonitoring indicates non-attainment of aquatic life standards in the receiving water, MDIFW Phillips shall be required to conduct

ambient macroinvertebrate biomonitoring annually thereafter. Prior to any such monitoring, MDIFW Phillips shall be required to submit a biomonitoring plan for Meadow Brook to MEDEP DEA for review and approval, pursuant to Permit Special Condition P. The plan shall be consistent with "*Methods for Biological Sampling and Analysis of Maine's Rivers and Streams*" (DEP #LW0387-B2002, August 2002) and shall include a scope of work and schedule, monitoring locations and maps, methods and materials, and reporting procedures for the biomonitoring program. Biomonitoring shall be conducted according to a Department approved monitoring plan. Results shall be reported to the Department in a biomonitoring report by December 15 each year. If the receiving water is subsequently determined by the Department to be meeting criteria, standards, and designated uses for its assigned water quality class, the Department will reopen the permit pursuant to Permit Special Condition P, to modify or discontinue the biomonitoring requirement.

16. AMBIENT DISSOLVED OXYGEN AND TEMPERATURE MONITORING:

The previous licensing action required the licensee to monitor dissolved oxygen, BOD, TSS, and total phosphorus in Meadow Brook at locations upstream and downstream of the outfall. Monitoring was required to be conducted in the mornings and afternoons between July 1 and September 30, 2000, and was designated as Outfalls #011A, #012A, #011P, and #012P. The intent of this requirement was to "*better quantify the characteristics of the hatchery effluent, the effectiveness of the various stages of treatment, and to determine effects on water quality...*".

Based on the low effluent dilution provided in the receiving water and the need for additional data on the effects of the MDIFW Phillips's effluent on the water quality of its receiving water, this permitting action requires the permittee to seasonally monitor ambient dissolved oxygen and temperature levels in Meadow Brook. The permittee shall monitor ambient dissolved oxygen and temperature (Celsius) from June 1 through September 30 each year beginning the effective date of this permit at a frequency of once per week and shall report the time of day the monitoring is conducted. The permittee shall report all monitoring results to the Department in a supplemental report accompanying the appropriate monthly discharge monitoring report. Monitoring shall be conducted within two hours of sunrise, or as indicated in a Department approved monitoring plan, at two locations: (1) in Meadow Brook above the MDIFW Phillips outfall in an area representing free-flowing conditions and (2) in Meadow Brook below the MDIFW Phillips outfall in an area representing the dissolved oxygen sag point, unless revised by the Department. The permittee shall also report on the composition of stream flow above the facility. The permittee shall specify if stream flow results from flow over the upstream reservoir spillway and provide the estimated depth of those flows, or only leakage through the dam and provide the length of time that condition persists in days. On or before one month following the effective date of this permit, MDIFW Phillips shall submit a plan for ambient dissolved oxygen and temperature monitoring and instrument calibration/data quality control to the Department's Division of Environmental Assessment for review and approval. The plan shall include a scope of work and schedule, monitoring locations and maps, sampling methods and materials, and reporting procedures for the ambient dissolved oxygen and temperature monitoring program. The plan shall also include

procedures for regular instrument calibration to ensure data quality control. Ambient dissolved oxygen and temperature monitoring shall be conducted according to a Department approved monitoring plan.

17. SALMON GENETIC INTEGRITY AND HATCHERY ESCAPE PREVENTION:

The US Fish and Wildlife Service and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries) formally listed the Atlantic salmon as an endangered species on November 17, 2000. Two significant issues of concern regarding the rearing of salmon in Maine involve the genetic integrity of the salmon and escape prevention to avoid impacts on native fish.

On December 4, 2000, in regard to the Department's pending delegation to administer the NPDES Permit Program, USEPA Region I informed the Department that "*permits issued to freshwater hatcheries raising salmon will require that the facility be designed or modified to achieve zero escapement of fish from the facility*". The EPA also stated, "*The information contained in the* (US Fish and Wildlife and NOAA Fisheries) *Services' listing documents indicates that a remnant population of wild Atlantic salmon is present in...*" Maine waters "*...and that salmon fish farms and hatcheries are activities having a significant impact on the...*" Gulf of Maine Distinct Population Segment of Atlantic salmon (DPS) "*...through, among other things, the escape of farmed and non-North American strains of salmon which may interbreed with the wild Maine strains, compete for habitat, disrupt native salmon redds, and spread disease.*" "*Based on this information, the Services have concluded that the escape of farm-raised salmon from fish farms and hatcheries is likely to significantly impair the growth, reproduction and habitat of wild salmon, thereby impairing the viability of the DPS.*" "*EPA has analyzed current information, including these findings, and based on this information believes that this remnant population constitutes an existing instream use of certain Gulf of Maine rivers and considers that the above-described impacts to the population would be inconsistent with Maine's water quality standards. Assuming the information discussed above does not significantly change, EPA will utilize its authorities to ensure compliance with Maine water quality standards by ensuring that conditions to protect the remnant population of Atlantic salmon are included in NPDES permits for salmon fish farms and hatcheries, which are subject to regulation as concentrated aquatic animal production facilities.*" "*In view of the substantial danger of extinction to the DPS described by the Services, it is EPA's view that proposed permits authorizing activities that would adversely affect the population, as described earlier in this letter, would be inconsistent with Maine's water quality standards and objectionable under the CWA.*"

Leading up to the listing and in subsequent draft MEPDES Permit / Maine WDL reviews, the USFWS and NOAA Fisheries have advocated for genetic testing of Atlantic salmon housed at hatchery and rearing facilities to ensure that they are of North American origin, as well as employment of a fully functional Containment Management System (CMS) at facilities to prevent the escape of raised salmon or other species of concern in order to avoid impacts on native fish populations. These issues are of particular concern for the Gulf of Maine DPS.

MDIFW Phillips is a state brook trout hatchery and rearing facility that produces fish for stocking in Maine waters as part of MDIFW's responsibilities in managing fisheries. MDIFW Phillips does not raise Atlantic salmon and thus is not subject to genetic testing requirements. MDIFW Phillips discharges its effluent to Meadow Brook, which in turn flows to an in-stream cranberry bog, Orbeton Stream, the Sandy River, and the Kennebec River. Although portions of the Kennebec River are designated DPS river segments, the receiving waters in the vicinity of the discharge are not DPS waters.

Regarding a small commercial hatchery and rearing facility located further downstream from MDIFW Phillips, USFWS and NOAA Fisheries recently stated, "*the hatchery is located outside the geographic range of the Gulf of Maine Distinct Population* (Segment (DPS)) *of Atlantic Salmon, which includes the Kennebec River up to the site of the former Edwards Dam. Although the discharge site...is eventually 'connected' to the Kennebec River within the Gulf of Maine DPS, we believe the project is remote enough that there is no danger posed to salmon in the lower Kennebec River...*". As MDIFW Phillips does not discharge effluent to a Gulf of Maine DPS river segment, a CMS plan is not required for the protection of endangered Atlantic salmon. However, NOAA Fisheries generally comments that from an ecosystem perspective, fish containment would certainly help protect native fauna in receiving waters. In consideration of this information and as infrastructure in place at the Phillips facility provide a level of fish containment management, neither genetic testing nor a CMS is being required in this permitting action.

18. SAMPLE CALCULATIONS FOR EFFLUENT FORMALIN

To calculate the effluent formalin concentration, the permittee shall utilize the concentration administered, the volume of water to which the formalin is added, and dilutions provided from administration to end-of-pipe. Parts per million (ppm) and milligrams per liter (mg/L) are equivalent measurements. The Department's method of calculating effluent formalin levels at the MDIFW Phillips facility are contained in Fact Sheet Section 6.f. The following are examples of alternate methods to calculate effluent formalin levels.

For egg treatments, this example involves administration of 1,720 ppm of formalin for 15 minutes in flow-through water. It assumes a rate of water through the egg trays of 150 gallons per minute times the 15-minute treatment period yielding 2,250 gallons of initial wastewater. The total facility wastewater flow during the same 15-minute period can be calculated by taking a current discharge flow of 8,300 gpm times 15 minutes yielding 124,500 gallons. The formalin would receive an initial dilution of 124,500 gal. / 2,250 gal = 55.3:1. The 124,500 gallons of wastewater flows to the facility settling ponds, which have a total capacity of 969,000 gallons. The formalin would receive a second dilution of 969,000 gal/124,500 gal = 7.8:1. The end of pipe concentration can be calculated as follows:

1,720 ppm formalin / 55.3 / 7.8 = 4 ppm formalin discharged

For external parasite treatments on fish, the example facility administers formalin at a dose of 225 ppm. In this example, two 7,700 gallon pools are treated simultaneously (15,400 gal). The volumes of the two pools are gradually exchanged with fresh water and discharged into the 8,300 gpm facility waste stream over 112 minutes providing an initial dilution. The facility wastewater flows to the settling ponds, which provide a small second dilution. The effluent concentration can be calculated as follows:

8,300 gpm x 112 minutes = 929,600 gal facility wastewater during pool discharge
929,600 gal facility wastewater / 15,400 gal pool volume = 60.3:1 initial dilution
969,000 gal settling pond / 929,600 gal facility wastewater = 1.04:1 second dilution
225 ppm formalin / 60.3 / 1.04 = 3.6 ppm formalin discharged

For broodstock external parasite treatments, the example facility administers formalin to new broodstock fish at a dose of 25 ppm in flow-through water. This example assumes a flow through rate of 80 gpm times a treatment period of 6-hours (360 minutes) per day yielding 28,800 gallons of initial wastewater. The wastewater then flows to the 969,000 gallon capacity settling ponds. The effluent concentration can be calculated as follows:

969,000 gal settling pond / 28,800 gal. waste stream = 33.6:1 dilution
25 ppm formalin / 33.6 = 0.74 ppm formalin discharged

The effluent mass shall be calculated by multiplying the actual gallons of formalin used at the facility in a 24-hour period by a 9.13 lbs/gallon conversion factor based on the specific gravity of formalin. The conversion factor is derived by multiplying the weight of water (8.34 lbs/gal) times the specific gravity of formalin as compared to water (1.095). If a facility administers 1.04 gallons of formalin in a day, the formalin mass can be calculated as follows:

1.04 gal formalin x 9.13 lbs/gallon = 9.5 lbs formalin discharged

In these examples, the various types of formalin treatments are not administered or discharged at the same time. If multiple discharges of formalin were to occur simultaneously, the facility would have to consider the cumulative formalin concentration and mass. These examples illustrate end-of-pipe (EOP) concentrations, which would be further diluted depending upon the facility's effluent dilution in the receiving water. If a facility receives a 3:1 effluent dilution in the receiving water, the calculated EOP concentration should be divided by three to provide the concentration in the receiving water after mixing.

19. DISCHARGE IMPACT ON RECEIVING WATER QUALITY:

As permitted, the Department has determined the existing water uses will be maintained and protected and the discharge will not cause or contribute to the failure of Meadow Brook to meet standards for Class A classification. In response to concerns with effects of fish hatchery effluent discharges on rivers and streams in Maine and limited available data, as outlined in Permit Special Condition N and Fact Sheet Section 15, MDIFW Phillips may be required to conduct ambient macroinvertebrate biomonitoring during the term of this permit.

MDIFW Phillips is also required to conduct ambient monitoring for dissolved oxygen and temperature, as specified in Permit Special Condition O and Fact Sheet Section 16. Data collected will be used to evaluate attainment of water classification standards and designated uses, resource impacts, and corrective measures when necessary.

If monitoring conducted pursuant to this permitting action and/or other monitoring efforts indicate that non-attainment conditions exist in the receiving water(s) and that MDIFW Phillips causes or contributes to those conditions, this permitting action may be reopened pursuant to Permit Special Condition P and effluent limitations, monitoring and operational requirements, and/or wastewater treatment requirements adjusted accordingly.

20. PUBLIC COMMENTS:

Public notice of this application was made in the Franklin Journal newspaper on or about June 27, 2005. The Department receives public comments on an application until the date a final agency action is taken on that application. Those persons receiving copies of draft permits shall have at least 30 days in which to submit comments on the draft or to request a public hearing, pursuant to Chapter 522 of the Department's rules.

21. DEPARTMENT CONTACTS:

Additional information concerning this permitting action may be obtained from and written comments should be sent to:

Robert D. Stratton
Division of Water Quality Management
Bureau of Land and Water Quality
Department of Environmental Protection
17 State House Station
Augusta, Maine 04333-0017

Telephone: (207) 287-6114
Fax: (207) 287-7826
email: Robert.D.Stratton@maine.gov

22. RESPONSE TO COMMENTS:

During the period of June 29, 2006 through July 28, 2006, the Department solicited comments on the proposed draft Maine Pollutant Discharge Elimination System Permit to be issued to the MDIFW Phillips Fish Hatchery for the proposed discharge. On July 11, 2006 the Department received a letter from Adrienne Rollo, a property owner on Toothaker Pond in Phillips, commenting on the Proposed Draft permit. Ms. Rollo's comments and the Department's responses are summarized below.

Comment 1: Ms. Rollo states, "*I strongly oppose the renewal of the Phillips hatchery discharge license due to the fact that the operation of that facility is preventing the restoration of Toothaker Pond just below the hatchery. On March 8, 2005, testimony was*

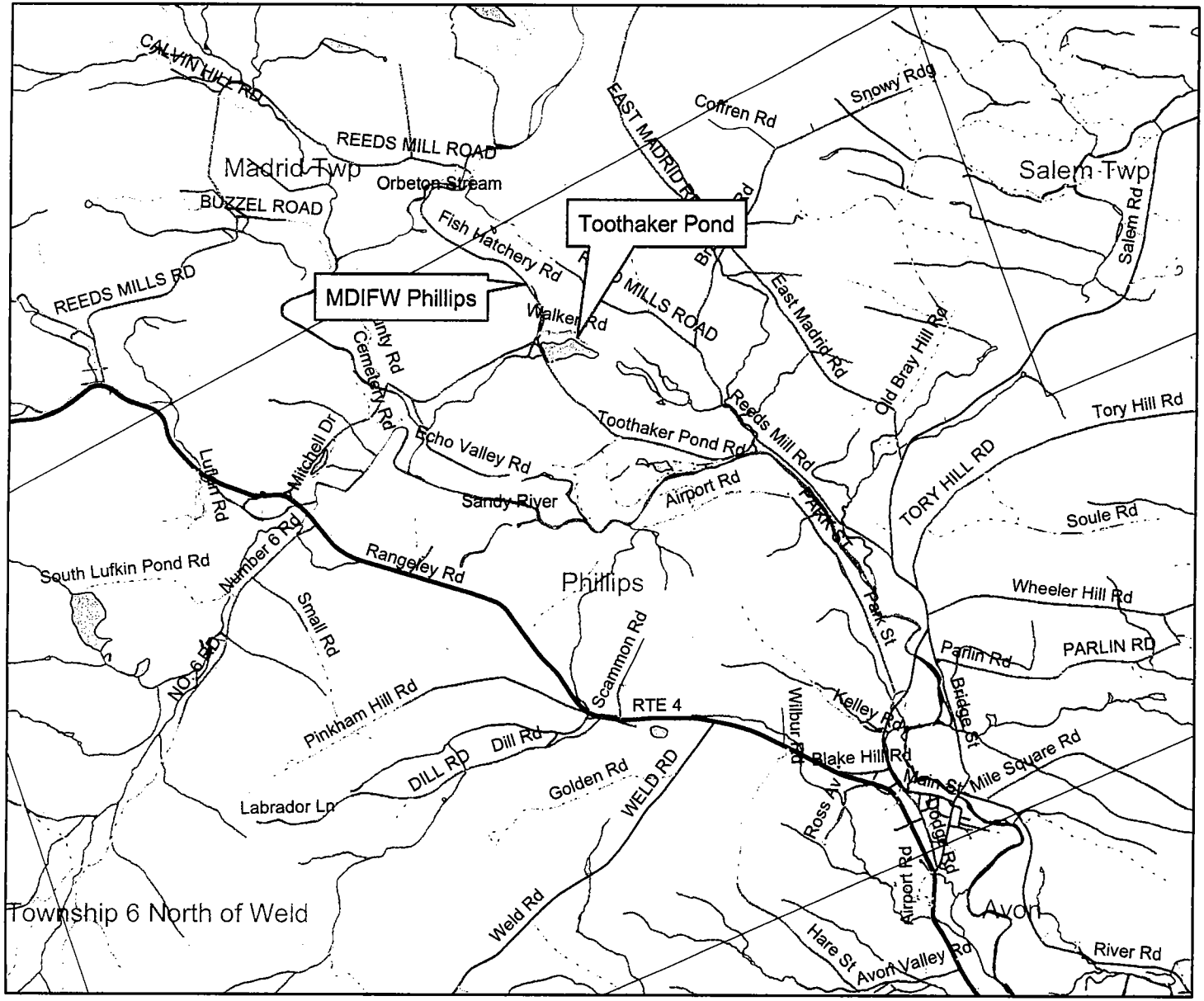
presented to the Committee on Natural Resources...which was solid proof that the Phillips hatchery was guilty for allowing unfiltered wastewater to empty directly into Toothaker Pond for over 4 decades. Instead of employing measures that would aid flushing phosphorus from Toothaker Pond, DIF&W diverted the stream away and the resulting consequences was to leave the pond green and choked with algae. If the renewal of the discharge license were postponed, then Meadow Brook could be rerouted to Toothaker Pond to promote flushing and restore the damage caused by this facility. Then and only then should the hatchery be allowed to reopen. Given the above information, it is unconscionable that the State of Maine would renew the discharge license and allow the Phillips hatchery to continue to discharge phosphorus laden effluent into Meadow Brook."

Response 1: The Department acknowledges that there has been for many years and continues to be, extensive research into the causes and potential solutions to water quality problems in Toothaker Pond, undertaken by property owners, MDIFW, and Maine DEP. There are also varied opinions as to those causes, contributions, and potential solutions. The Department's Division of Environmental Assessment is actively involved in addressing these issues and works closely with all interested parties. As indicated in Fact Sheet Section 2c, History, it is reported that Meadow Brook was originally diverted from its natural course into Toothaker Pond in the early 1900s, then diverted out of Toothaker Pond in the 1970s. One of the potential solutions for Toothaker Pond's water quality problems being discussed is re-diversion of Meadow Brook into Toothaker Pond to provide additional water flows to the pond. However, this permitting action addresses attainment of water classification standards and designated uses, protection of aquatic life, and quality and quantity of wastewater discharges to the facility's receiving water, Meadow Brook, which at the present time and since the 1970s, does not flow into Toothaker Pond.

In recent years the Department has undertaken extensive research and revisions of its fish hatchery and rearing facility wastewater program, establishing a program that is scientifically based and consistently applied to all state, federal, and commercial facilities to insure protection of Maine waters, aquatic life, and designated uses. This program applies both technology based provisions common to the industry and water quality based requirements specific to the receiving water. As such, this permitting action establishes revised effluent limitations and minimum monitoring requirements, as well as provisions addressing an Operation and Maintenance Plan, Alternative Discharge Study, maintenance of wastewater settling structures, Disease and Pathogen Control and Reporting, Therapeutic Agents, Disinfecting/Sanitizing Agents, Minimum Treatment Technology, Ambient Macroinvertebrate Biomonitoring, and Ambient Dissolved Oxygen and Temperature Monitoring. As stated in Fact Sheet Section 19, Discharge Impact on Receiving Water Quality, "*As permitted, the Department has determined the existing water uses will be maintained and protected and the discharge will not cause or contribute to the failure of Meadow Brook to meet standards for Class A classification. ... If monitoring conducted pursuant to this permitting action and/or other monitoring efforts indicate that non-attainment conditions exist in the receiving water(s) and that MDIFW Phillips causes or contributes to those conditions, this permitting action may be reopened pursuant to Permit Special Condition P and effluent limitations, monitoring and operational requirements, and/or wastewater treatment requirements adjusted accordingly.*"

ATTACHMENT A

(Facility Location Maps)



Legend

Rivers
- AA
- A
- B
- C

Streams
- AA
- A
- B
- C

- Ponds and Lakes
- Wastewater_Facilities
- Wastewater_Outfalls

Roads

JURISDICTION
- Town Road
- Town Road - Summer
- Town Road - Winter
- State-aided Highway
- State Highway
- Toll Highway
- Private Road
- Reservation Road
- Seasonal Parkway

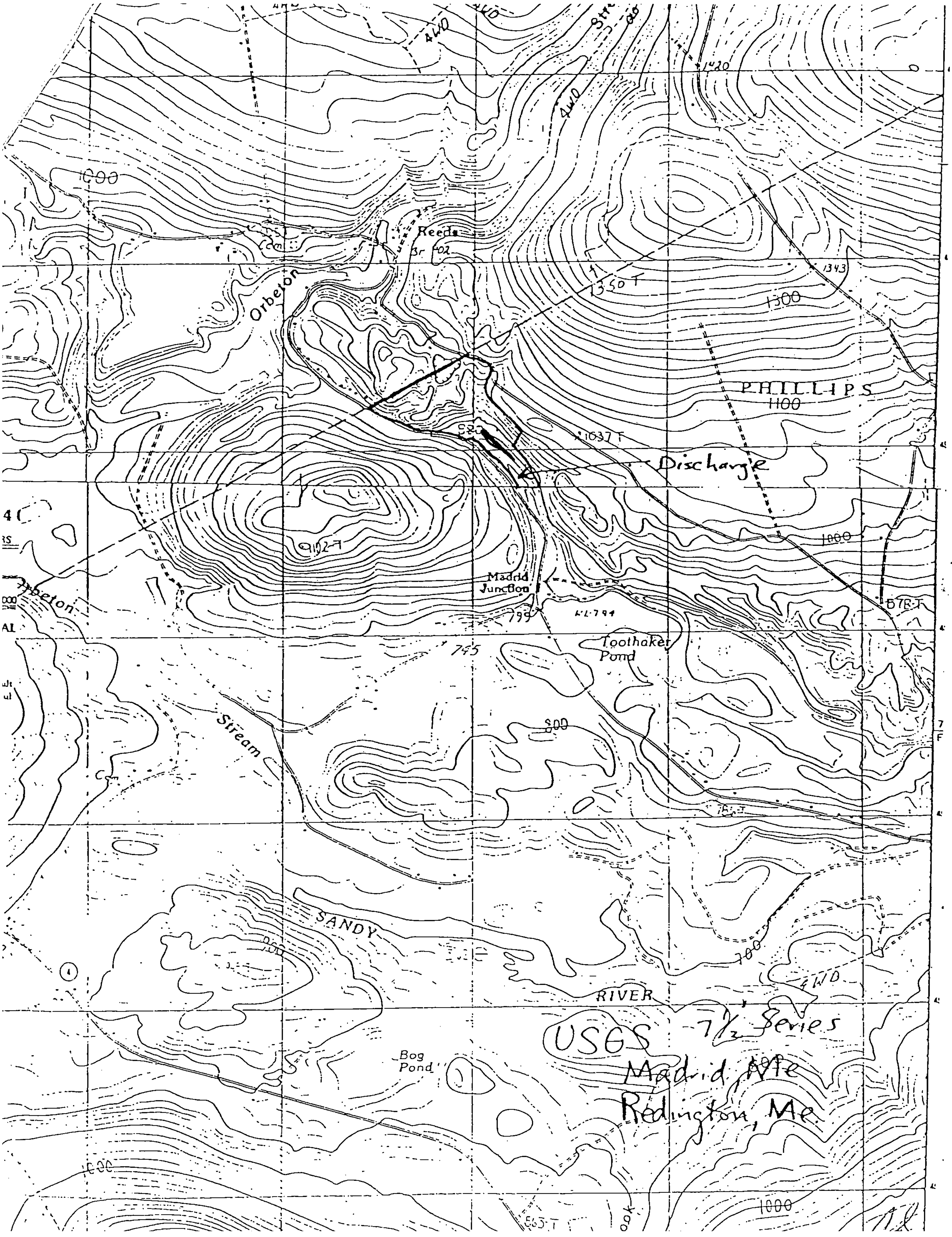
N

Miles
0 0.35 0.7 1.4 2.1 2.8

MDIFW Phillips Fish Hatchery
Phillips, Maine

Map created by:
Bob Stratton
Division of Water Resource Regulation
Maine Department of Environmental Protection

DEPARTMENT OF ENVIRONMENTAL PROTECTION
STATE OF MAINE



Reeds
Orbeton
1350 T
1300
PHILLIPS
1100
1037 T
Discharge
Madrid
Junction
Toothaker
Pond
1000
Orbeton
Stream
800
SANDY
RIVER
4WD
700
Bog
Pond
USGS 7½' Series
Madrid, Me
Redington, Me
1000

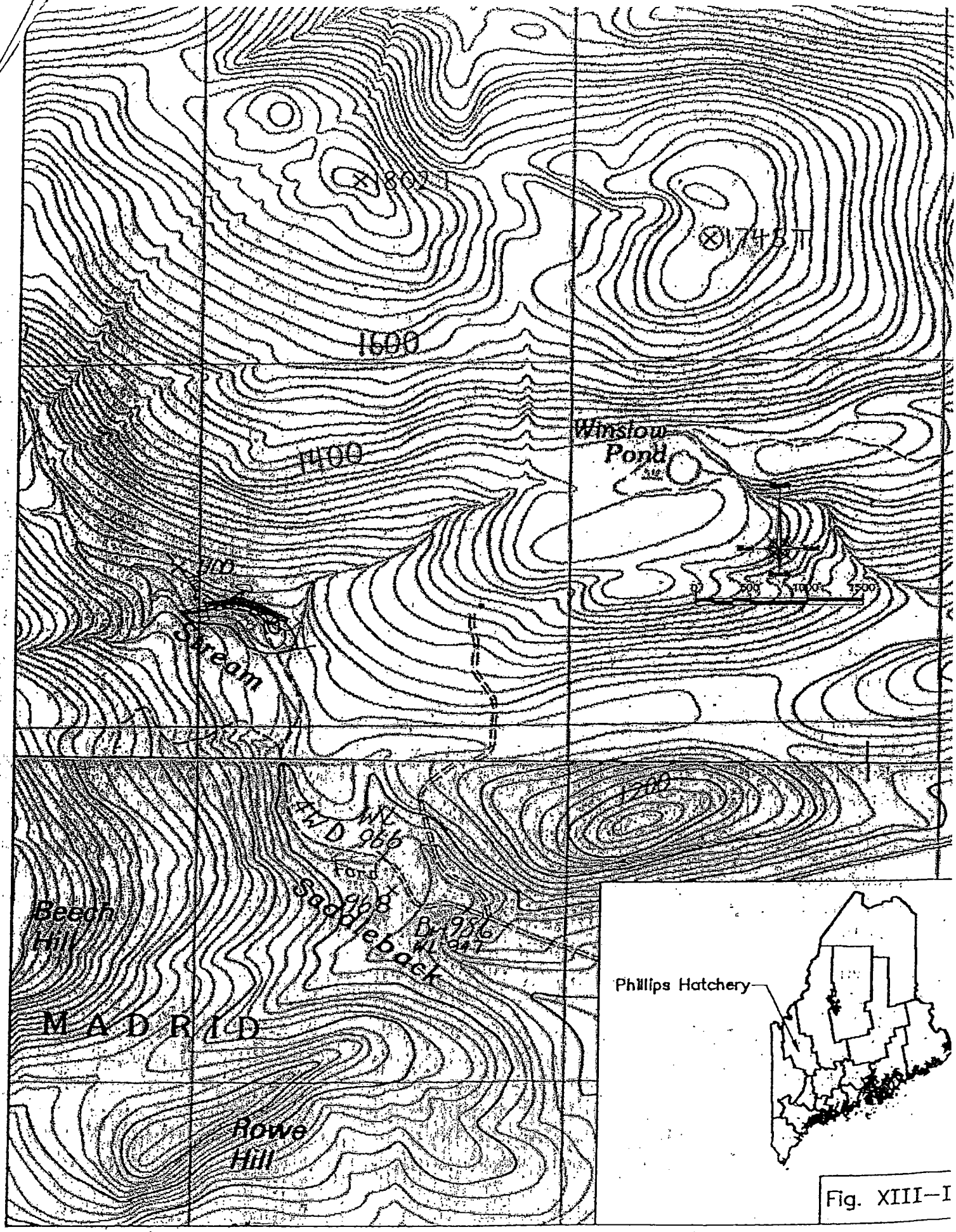
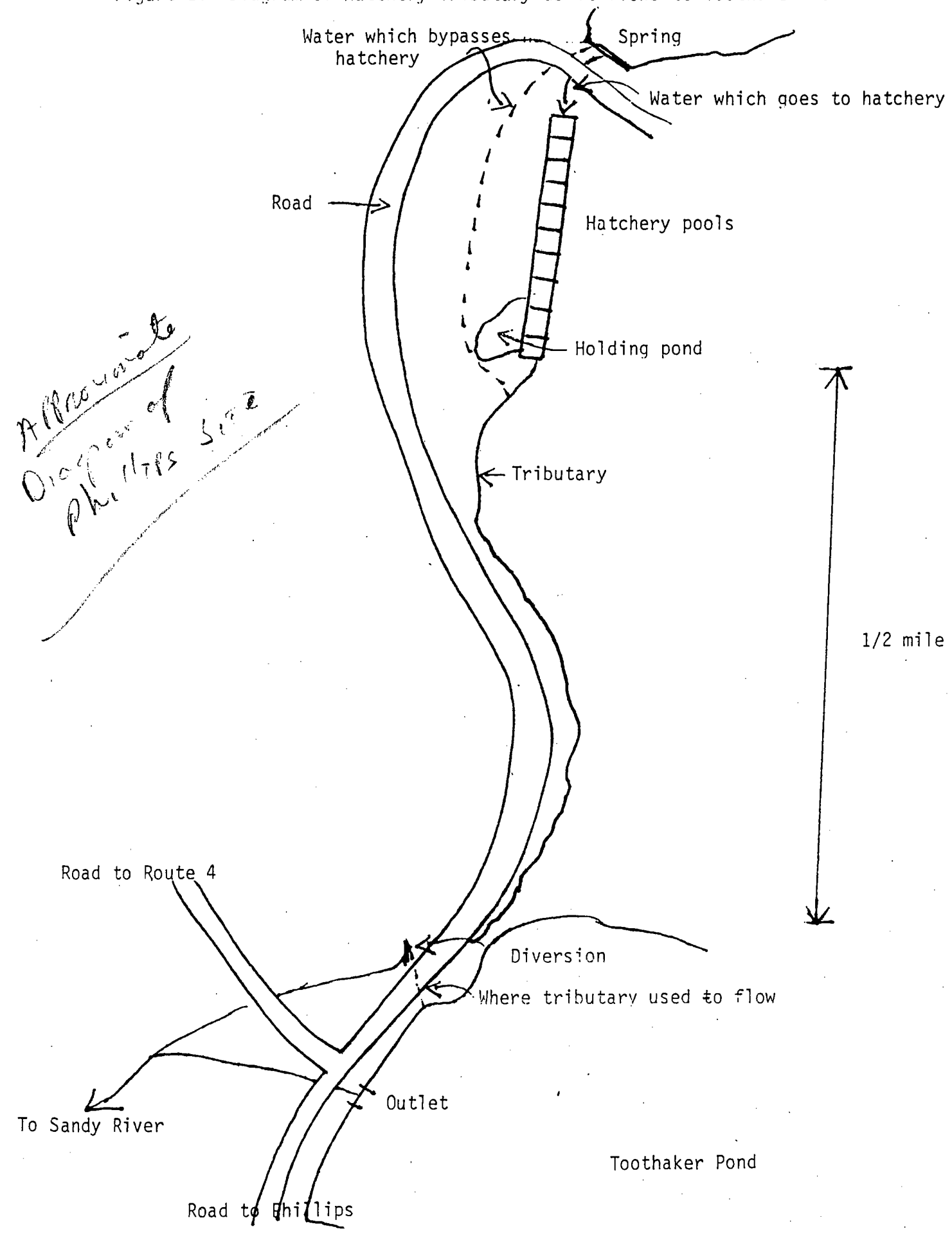

1600
1400
Winslow Pond
Stream
Beech Hill
Saddleback
MADRID
Rowe Hill
Phillips Hatchery

Fig. XIII–I

STRATTON 6/04

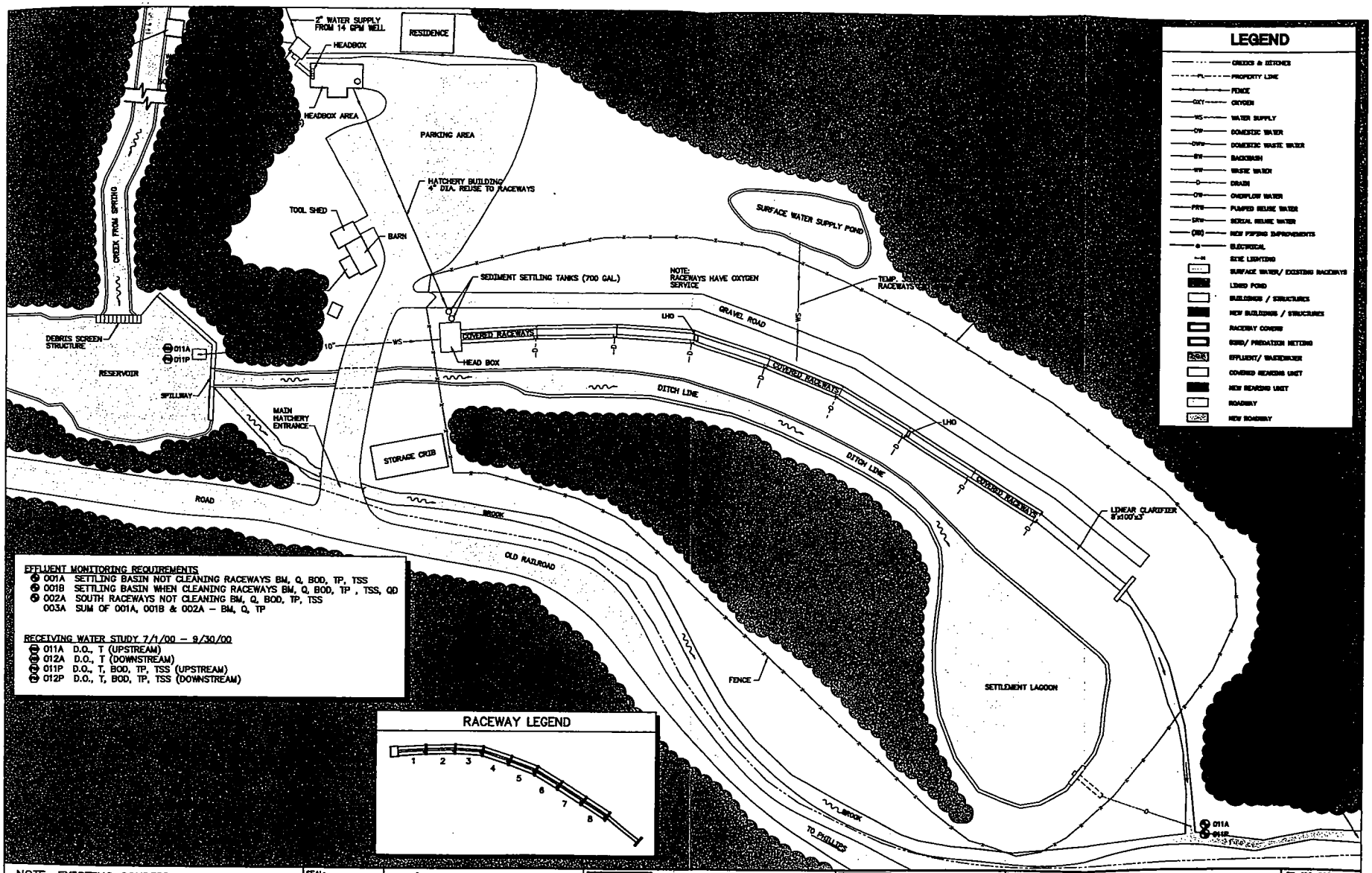
Figure 1. Diagram of Hatchery Tributary as it flows to Toothaker Pond



Alternate Diagram of Phillips Site

ATTACHMENT B

(Facility Site Plans)



NOTE: EXISTING CONDITIONS DRAWINGS WERE GENERATED USING AERIAL PHOTOGRAPHY FOR GRAPHICAL PRESENTATION PURPOSES ONLY. DRAWINGS SHOULD NOT BE USED FOR SCALED ENGINEERING DESIGN.

SEAL:

FISHPRO
Consulting Engineers and Scientists
[redacted]

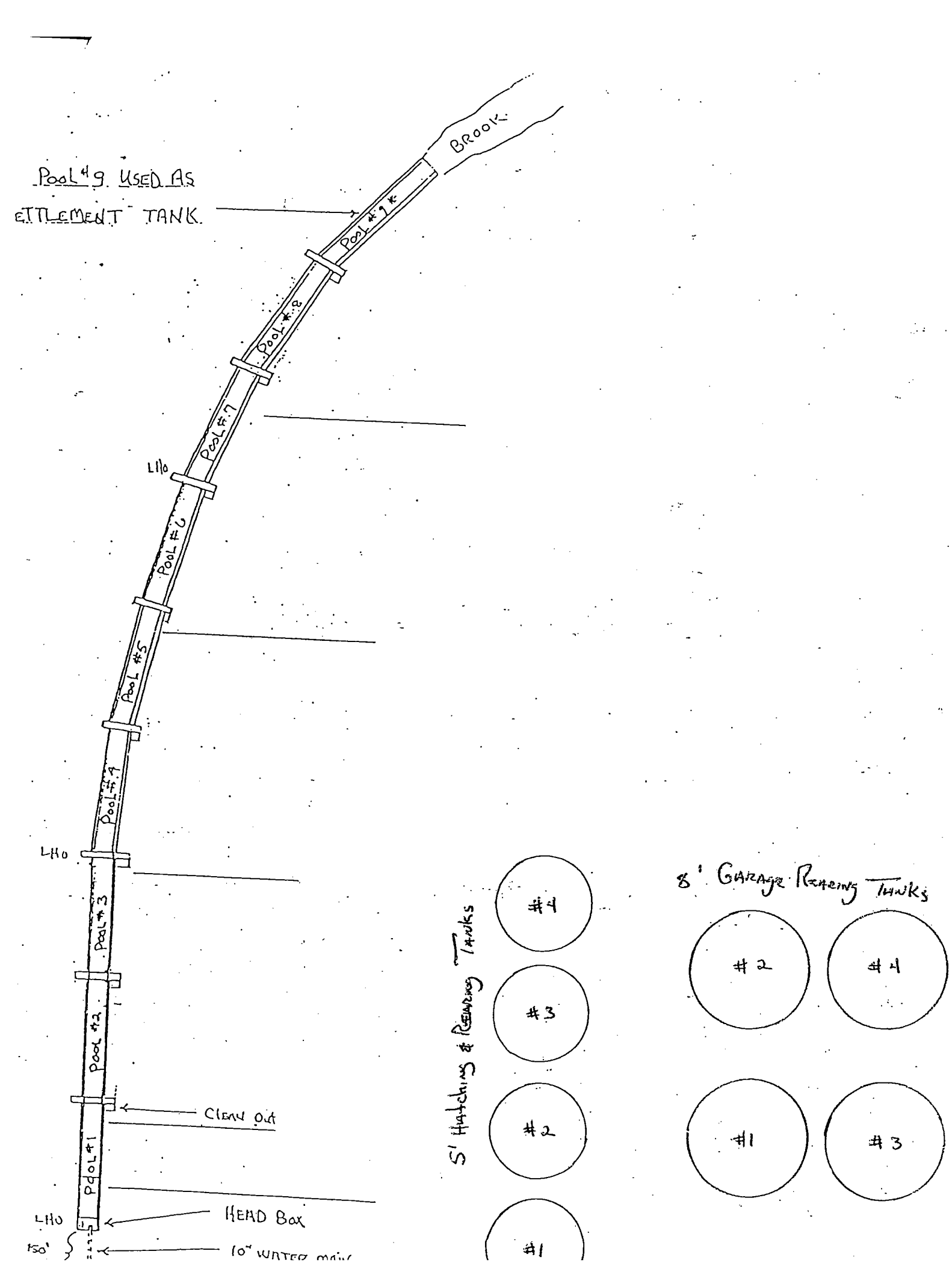
STATE OF MAINE
DEPARTMENT OF INLAND FISHERIES AND WILDLIFE

STATE OF MAINE

DRAWING TITLE: PHILLIPS EXISTING CONDITIONS

PROJECT: MAINE COMPREHENSIVE STATEWIDE FISH HATCHERY SYSTEM ENGINEERING STUDY

FP #00-095
DATE: MAR. 2002
SHEET: C-P-3
OF 2 SHEETS


Pool #9 USED AS
ETTLEMENT TANK.
BROOK
Pool #9
Pool #8
Pool #7
LHo
Pool #6
Pool #5
Pool #4
LHo
Pool #3
Pool #2
CLEAN OUT
Pdol #1
LHo
HEAD Box
150'
10" WATER main
5' Hatching & Rearing Tanks
#4
#3
#2
#1
8' Garage Rearing Tanks
#2
#4
#1
#3

ATTACHMENT C

(Engineer's Facilities Planning Report)

MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Land and Water Quality
Division of Water Quality Management

INVESTIGATION PROTOCOL

All reports, plans and specifications shall be submitted by the dates specified in the permit. The documents submitted for formal approval shall include the engineer's report, final plans and specifications.

Procurement of Engineering Services.

This step requires retaining an engineering firm to plan, study, and design the project. The owner then hires one or more separate construction contractors to build the project; construction services, including construction management, are performed by the design firm. Start-up and operator instruction services are performed by the design engineer.

Engineer's Facilities Planning Report (Reports Required Pursuant to Permit Special Condition G).

The purpose of the report is to present in clear, concise form a description of the problem, alternative solutions examined, rejected and recommended, their technical and financial feasibility, and their environmental impact. The report should contain a detailed basis of design covering each component of the treatment process. The engineer's report should provide a description of alternative wastewater treatment processes screened for consideration, as well as factors considered in selecting processes. Such factors should include:

Compatibility with existing facilities
Flexibility for expansion
Ability to meet required permit limits
Suitability to handle probable variations in plant loading
Proven effectiveness
Land area requirements
Labor requirements
Construction costs
Operational costs
Energy requirements
Odor potential

System Alternatives: The engineer must carefully consider all feasible designs for the facility. The initial evaluation should focus on the technical appropriateness of all alternatives. Then, those deemed technically appropriate should receive in-depth technical and economic evaluation. The alternatives that should be evaluated include: source reduction through pollution prevention, storage and release to the receiving water as appropriate to reduce toxic amounts, conveyance of the waste to the POTW, pretreatment, conventional treatment and innovative/alternative treatment.

Conclusions, Recommendations, and Proposed Schedules: The engineer's facility planning report should clearly summarize the detailed evaluations contained in the body of the report. Provide a clear description of what is being proposed and propose an implementation schedule for approval. A typical schedule should reflect various future phases of the project such as required approvals, final design, bidding, contract award, construction and start-up. The facility shall be fully operational within the timeframes established in the permit.

Final Design Contract Drawings and Specifications

Plans should consist of general views, specific plan areas, elevations, sections, and details. Together with the specifications, these provide information for the contract and construction of the project. Complete technical specifications for the work should accompany the plans. Technical specifications should be clear and concise. They should include, but are not limited to, all construction information that the builder needs that is not shown on the plans, such as details of the design requirements, including the quality of materials, lists of required manuals, tools, chemicals, spare parts, and calibration equipment.